

**DEFINING A MODEL AND STRATEGY TO INSTITUTIONALIZE AND SCALE A
PROJECT THAT AIMS TO EMPOWER TEACHERS WHO WORK WITH
INCLUSION - HOW TO QUANTIFY AND ASSESS THE NEEDS AND PATTERNS
OF SPECIAL EDUCATION DEMAND?**

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Abstract

In the path towards an inclusive society, the Education System plays a key role, following the premise that if teachers are empowered to address the heterogeneous needs of different students, these may receive support that matches their needs, preparing them for a self-sufficient future. Thus, the following research evaluates the Special Needs Students and the teachers' perspectives, to identify the existent gap between the two groups and how to mitigate it. After gathering existent best practices, two solutions were proposed, based on an increase in the number of Special Education Teachers and a more complete qualification for the regular ones.

Keywords

Social Impact, Inclusive Education, Social Inclusion, Special Needs, Benchmark, Self-Sufficiency, Professional Inclusion, Investment in Special Education, Teachers, Public Schools, Disability, Family Perception, Recruitment Needs, Teaching Qualification, Unattractiveness, Specialized Courses

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Abbreviations

CAA: *Centro de Apoio à Aprendizagem*

CCPFC: *Conselho Científico-Pedagógico da Formação Contínua*

CRI: *Centro de Recurso para a Inclusão*

DGEEC: *Direção Geral de Estatísticas da Educação e Ciência*

EMAEI: *Equipa Multidisciplinar de Apoio à Educação Inclusiva*

ICF: *Inclusive Community Forum*

INE: *Instituto Nacional de Estatística*

INR: *Instituto Nacional para a Reabilitação*

IPSS: *Instituição Particular de Solidariedade Social*

NUTS: *Nomenclature for Territorial Units for Statistics*

PIT: *Plano Individual de Transição*

PwD: *People with Disabilities*

QZP: *Quadro de Zona Pedagógica*

RTP: *Relatório Técnico-Pedagógico*

SEN: *Special Education Needs*

SET: *Special Education Teachers*

SNIP: *Sistema de Intervenção Precoce na Infância*

SSEN: *Students with Special Education Needs*

TCS: *Teaching Career Statute*

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1. Introduction

The topic of the inclusion of PwD (People with Disabilities) in society is a truly complex one, being influenced by many variables and analyzed from various distinct angles. However, regardless of the perspective from which it is seen, if one intends to understand how a society may be structurally open to difference, the topic of education is unavoidable.

In Portugal, children must spend 12 years of their life at school, from the age of six until 18 (Decreto-Lei n.º 176/2012 2012). Therefore, it is at school where one is given the opportunity to grow, learn, and gather the tools that one day will allow for an independent and successful life, regardless of how this differs from person to person.

If this is true for a person without disabilities, the same happens – or should happen – with people with Special Education Needs (SEN). Provided that the school is prepared to receive these students and to adapt its approach to their needs, they are also capable of making the most out of the mandatory school time, in order to build their own future. One that focuses on their abilities and strengths, and where they may feel happy and accomplished.

Given this, in order to understand how a person with disabilities may be fully included in society, it is crucial to look at the years spent in school and to critically evaluate whether the necessary measures are being applied, or if a change is needed.

This type of critical evaluation only started to be put on the table in Portugal in the 1970s, when a regime of integration of blind, deaf, and those with motor disabilities started to progressively be established. In the year of 1986, special education started to be considered as a type of education with the approval of the *Lei de Bases do Sistema Educativo* (Lei n.º 46/86 1986), marking a milestone in the progress towards an inclusive society which, even with some delay, was being made.

Moving forward to 2018, an important step was taken in Portugal, which consisted of the approval of the Decree-Law n. ° 54/2018, of July 6th. This established the legal framework for inclusive education and gave a new amplitude to the concept of Special Education Needs. While the previous legislation only targeted students with permanent SEN, the current one applies to all students. From that moment on, schools started to be given a higher degree of flexibility, to achieve the main purpose of this Decree-Law: that an inclusive curriculum is built not by assuming the same patterns for all students, but by allowing for an individual adaptation considering each individual profile (JPN 2022).

This Decree-Law represents the commitment to an inclusive school system, where each and every student finds solutions that enable them to acquire a level of education and training that facilitates their full social inclusion. This realizes the right of each student to an inclusive education that responds to their potential, expectations, and needs. This involves a common and plural educational project that fosters everyone's participation and builds on a sense of belonging in effective conditions of equity, contributing to greater levels of social cohesion (Decreto-Lei n.º 54/2018 2018).

However, even though the context of inclusion in Portugal, and especially in Education, has taken many steps further with the approval of this Decree-Law, *“inclusion is a process, it does not happen through a decree”*, as said by the president of *Pró-Inclusão – Associação Nacional de Docentes de Educação Especial*, Margarida Loureiro (JPN 2022). Therefore, this process requires more than the establishment of laws to reach an inclusive society: everyone needs to be on board with them and have the resources to do so.

One issue raised under the topic of inclusion in schools has to do exactly with this point: the lack of qualifications that regular teachers, non-specialized in SEN, possess to deal with inclusion. This has been a barrier to achieving full inclusion in schools, since many teachers are

not empowered to deal with Students with SEN (SSEN), adding up to the increased difficulty of having to do so while teaching many more at the same time, with completely different needs. The results end up leading to a poorly achieved inclusion model, where neither students with nor without disabilities can learn what they need.

Given this, the purpose of this Work Project will be to define a model and a strategy with scalability that aims to empower teachers who work with inclusion. The scope defined for this purpose is the public school system, from pre-school to secondary school, and with a geographical focus on Continental Portugal. The belief that sustains this research is that by providing every teacher with the tools to deal with SSEN, these can more efficiently be included in regular classrooms, which leads to a much higher degree of inclusion in the school. Because, at the end of the day, it is not only about school but also about what comes after. If, when growing up, one is used to working side by side with peers with SEN, even though with different curricular programs, then an increasing normalization of this difference will start to happen, starting in classrooms and being taken to every student's life afterward.

While the concept of full and total inclusion may be seen as utopian for some, there is certainly a part of the society that refuses to believe so – the Inclusive Community Forum (ICF) is included here. One cannot tell yet if this vision of a truly inclusive society will take place in the near future. But, if so, it will certainly be due to the will of those who insist on looking at the added value that comes from people's differences, rather than to the possible obstacles that the lack of similarities may bring. Because, at the end of the day, acknowledging these differences is what will make the world move forward – and this can only happen with no one left behind.

2. Context

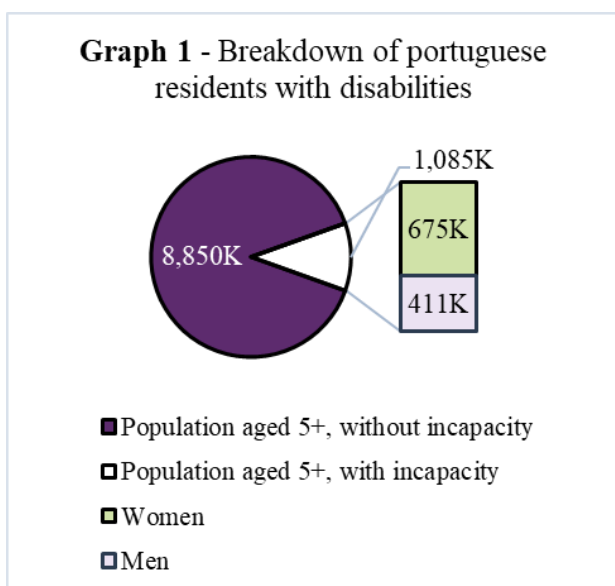
What is the current context of disability in Portugal and how is ICF acting on it?

2.1. Disability in Portugal: Context

2.1.1. Disability in Numbers

In 2021, a comprehensive public census was conducted in Portugal, by *Instituto Nacional de Estatística* (INE), with the primary goal of understanding the difficulties of the Portuguese population that struggles with incapacity (INE 2022).

To assess incapacity, the census identifies seeing, hearing, walking, cognition, self-care, and communication as the six domains of functioning, with the first four being key to identifying incapacity (Washington Group on Disability Statistics 2022). Respondents were asked to articulate the degree of difficulty in each of these domains, with response options going from a range of “No difficulty” to “Cannot do at all”.



Legend: In 2021, there were 1,085k people with incapacities, most being women.

Analyzing the data from this census (Graph 1), one can understand the current disability landscape in Portugal in numbers. In 2021, there were 1.1M Portuguese residents, aged five or older, with at least one incapacity in the six domains of functioning. This value translates to 11% of the total census population, as there are 9.9M residents aged five or older. It is worth noting that the data displays a gender disparity, with 62% of people dealing with incapacity being women.

The impact of age on the incidence of incapacity is also clear, with 80% of people grappling with incapacity being aged 55 or older. Even if the age threshold were to be increased to 70 and older, one would still be observing 57% of the population with incapacity. In contrast, people aged between 5 and 34 years old only represent 7% of the population with incapacity.

Delving into the six domains of functioning, the most prevalent difficulty is in the domain of walking, with 607k people suffering from said incapacity, representing a total of 6% of Portuguese residents aged five or older. Following closely are seeing and cognition, with 352k and 340k people dealing with them, respectively (**Appendix 1**).

2.1.2. (In)equity and Inclusiveness Context

Despite showing relevant progress when it comes to the rights of PwD, substantial signs of inequity still persist in Portugal, contributing to a significant lack of inclusiveness. The covered topics will be Education, Employment, and Quality of Life.

Starting with Education, plenty of imbalances are shown. Despite only 7% of students having SEN (DGEEC 2021), the measures and indicators do not show a satisfactory level of inclusiveness.

79% of SSEN technical reports from pre-school to secondary education, *Relatório Técnico-Pedagógico* (RTP), show students only getting some selective support measures in the likes of slight teaching plan changes or reinforcements of taught contents, while only 5% of them got additional measures such as significative teaching plan changes, individual teaching plans or working on personal and social autonomy. Moreover, 16% of students got both selective and additional measures (DGEEC 2021).

On another note, in the academic year of 2020/2021, only 528 SSEN successfully graduated superior education (-17% than in the previous year), out of 2 582 enrolled students. Similarly,

only 2% of the total number of scholarships awarded in the same year were allocated to SSEN (Observatório da Deficiência e Direitos Humanos 2022).

In the sphere of Employment, a clear imbalance is observed, with an unemployment rate disparity between people with and without disabilities of 18%, in 2020. In that same year, 62% of unemployed PwD were looking for a job for more than one year. Furthermore, the unemployment of PwD has increased by 31% between 2011 and 2021. Despite a change of trend in 2022, with a 17% decrease in unemployment in the country, PwD only saw a 5% decrease.

In 2020, a mere 0.6% of the human resources of companies with more than ten employees consisted of PwD, while only 3% of public employees had disabilities. These values show how there is still a considerable track to cover towards inclusiveness in the labor scene (Observatório da Deficiência e Direitos Humanos 2022).

The Quality of Life for PwD is ultimately shaped by the interconnection of various factors, including the aforementioned topics of education and employment. Hence, it is clear that PwD strive to improve their living conditions and create a better life for themselves, hoping for opportunities and inclusiveness.

In 2021, 17% of families that have adults with disabilities struggle with paying bills, compared to 8% of families without disabilities. Likewise, PwD aged between 16 and 64 face a higher risk of poverty and social exclusion, with a rate of 34% compared to 19% for those without disabilities (Observatório da Deficiência e Direitos Humanos 2022).

Having covered crucial structural elements, it is also important to highlight the day-to-day issue of discrimination, with the occurrence of 1.2k formal complaints regarding disability discrimination in 2021, representing a 17% increase when compared to the previous year (Observatório da Deficiência e Direitos Humanos 2022).

As education is at the root of one's development, contributing to better employment opportunities and consequent quality of life, any progress towards integration in this area is expected to create a positive domino effect. In this sense, improving inclusiveness in education is the focus of this Work Project.

2.2. The Inclusive Community Forum

Born in 2017, the Inclusive Community Forum is a Nova SBE initiative that aims to promote a more inclusive community, with the mission to *“call for the community's active participation in the development of structured initiatives to address the main obstacles to the inclusion of PwD.”* (ICF n.d.). This is supported by ICF's vision: to *“be the driver for an inclusive community in which every person with a disability can fulfill their life project.”* Moreover, the core values of the project that sustain its existence are Inclusion, Equity, Cooperation, and Innovation.

Given this, ICF's main goal in terms of concrete action is to build a network consisting of all those who play a role in these people's lives, challenging them to take an active role in co-creating solutions and structured initiatives. This happens under two pillars: Employability and Education. Having the former been the first topic approached, the latter entered the portfolio in April 2019, and ICF is now actively working on solutions for both areas.

As for Employability, after carrying out a diagnosis phase to understand the true needs of the community, ICF developed some solutions, tested through pilot projects. Nowadays, these solutions have been transformed into active initiatives which already work to fulfill ICF's purpose. One example is the “Journey to Inclusion”, a 5-step path proposed by ICF for companies who want to be more inclusive concerning PwD, which has gathered 52 Portuguese firms up to now (ICF n.d.). Additionally, ICF has explored the topic of Inclusive Recruitment, by developing a project regarding the process that lies underneath it, together with recruitment

companies and IPSS's (*Instituição Particular de Solidariedade Social*) dedicated to inclusion. At today's date, 5 recruitment companies have incorporated the tested process in their activity and now operate in partnership with ICF, in order to connect PwD to job vacancies. Finally, inside this topic, ICF has developed "Peer2Peer", a program to provide preparation for entering the labor market by creating a dynamic pair between a university student and a disabled person looking for work. The goal is that both participants benefit from the opportunity to get to know a different reality and to learn from each other's strengths. This initiative is now spread across five universities.

In April 2019, ICF started to explore the topic of Education for PwD as a step for transitioning to working life, with the goal of "strengthening the empowerment of PwD for working life". Therefore, ICF and its community have begun to develop solutions to transform the current landscape in this area (ICF n.d.). Some examples of initiatives that emerged from these Labs were: the "Learn while Teaching" (a project to empower teachers to deal with SSEN); the "ComPIT" (a project that project promotes vocational experiences under the Individual Transition Plan (PIT) through the use of a platform) and many others.

As a sequence of this continuous effort to join ideas that may provide a better and more well-suited Education system for SSEN, ICF prompted this Work Project, so that more research is conducted regarding how teachers may be empowered to deal with SSEN, in a way that the latter graduate school with the required competences to enter the job market. The final goal is that, step by step, society becomes more inclusive each day, and that the obstacles previously identified (section 2.1. *Disability in Portugal: Context*) are eradicated, allowing PwD to live a happy and fulfilling life.

3. Current Landscape

What are the measures being taken on an international level?

3.1. International Benchmark

3.1.1. Comparative Analysis of Receptivity Towards PwD

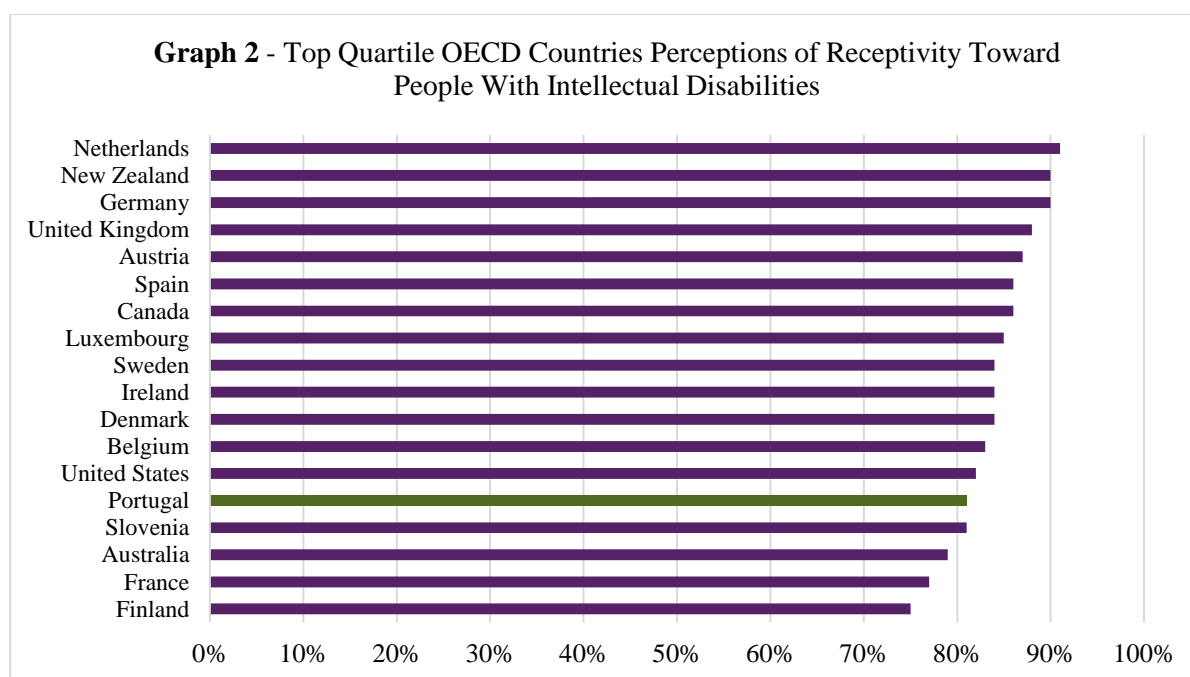
In order to look at Portugal's current landscape in a critical way, it is crucial to understand what is happening in other countries, especially those Portugal may look up to as good examples of inclusion of people with SEN.

However, there is not one single variable that, by itself, translates the standings of a country in terms of inclusion. While the level of investment in SEN is indeed a good approach, it does not necessarily mean that the inclusion of people with SEN is efficiently done. Thus, taking a step back, a ranking of 102 countries based on the Gallup study (Muller 2021) regarding "Global Perceptions of Receptivity Toward People with Intellectual Disabilities" was analyzed. The rationale behind this implies that, if the educational setting of people with SEN is done correctly, their inclusion in the workforce is more likely to successfully happen, which then will positively affect their inclusion in society, leading to a better perception of receptivity towards them. As such, even though the current purpose of this work is based on the education of people with SEN, the long-term goal is their inclusion in society, the reason why this ranking was followed as a benchmark for good examples within the OECD countries. Also, an assumption made was that despite this ranking being focused on people with intellectual disabilities, the same is likely to happen for other types of disability. As the variable evaluated ends up being a translation of the mindsets towards disability, its values are not likely to change drastically regarding, for example, people with physical disabilities.

This study was based on data collected in 102 countries in 2010 by a survey administration that reached approximately 1,000 adults. With a 95% confidence level, the margin of sampling error is estimated to vary, ranging from ± 1.7 percentage points to ± 4.7 percentage points. Among

the 102 countries, Yemen reported the lowest perception score of 24%, being considered the less favorable place for individuals with intellectual disabilities, while the Netherlands demonstrated the highest rating, reaching a 91% result.

Under this study, Portugal is ranked 16th out of the 102 countries, with a score of 81%, indicating that it has a positive environment in terms of receptivity towards people with intellectual disabilities. However, there are 15 countries ahead of Portugal, 13 of which are OECD countries, which were considered to be more comparable under this context. These countries are, in descending order of ranking: Netherlands, New Zealand, Germany, United Kingdom, Austria, Spain, Canada, Luxembourg, Sweden, Ireland, Denmark, Belgium, and the United States (Graph 2).



Legend: Portugal is in the top quartile in global receptivity towards people with intellectual disabilities alongside other comparable 17 OECD countries.

For the analysis performed in this Work Project, these countries were considered a reliable source of comparison for Portugal in terms of inclusion. Hence, even though more practices and countries were analyzed, these 13 were considered those that Portugal intends to follow.

3.1.2. Comparative Analysis of Investment in SSEN

One of the possible reasons why some countries may be more receptive towards PwD is how much each government invests in the area. Hence, it was analyzed, how much is invested in public education from pre-school to secondary school per SSEN in these top 14 OECD countries.

Due to the lack of recent data in this area, the developed analysis was based on 2021 values, where pondered assumptions sustained the performed calculations to reach the total number of SSEN and total investment in special education per country.

Starting with the total number of SSEN, the first step was to find, for each of these 14 countries, the total number of students enrolled in public and private schools in the targeted levels of education. For Portugal's case, the total number of students is known, at 1,490,507 (DGEEC 2022b) (**Appendix 2**). For the other 13 countries, the number of students from primary to secondary school (World Statistics n.d.), as well as the number of students in pre-school were gathered. This separation comes from the fact that statistics regarding pre-school education are usually not included in the overall data regarding education (OECD 2023). To gather the number of students at this level, the enrollment rate in pre-school for each age (OECD n.d.c) was collected and multiplied by the respective total absolute number of children in that age group (OECD n.d.b). Calculations are shown in **Appendix 3**.

Additionally, to reach the total number of students in public schools, the total value of students previously gathered was multiplied by the percentage of students that attend public schools (OECD 2020) for each of the 13 countries.

According to *Direção Geral de Estatísticas da Educação e Ciência* (DGEEC), the total number of SSEN in public schools in Portugal in the school year of 2020/2021 was 78,268, which represents approximately 7% of the total number of students enrolled in public schools from

pre-school to secondary school. This percentage was assumed for the other 13 OECD countries since there is no reason to believe that these countries have a much different incidence of SSEN.

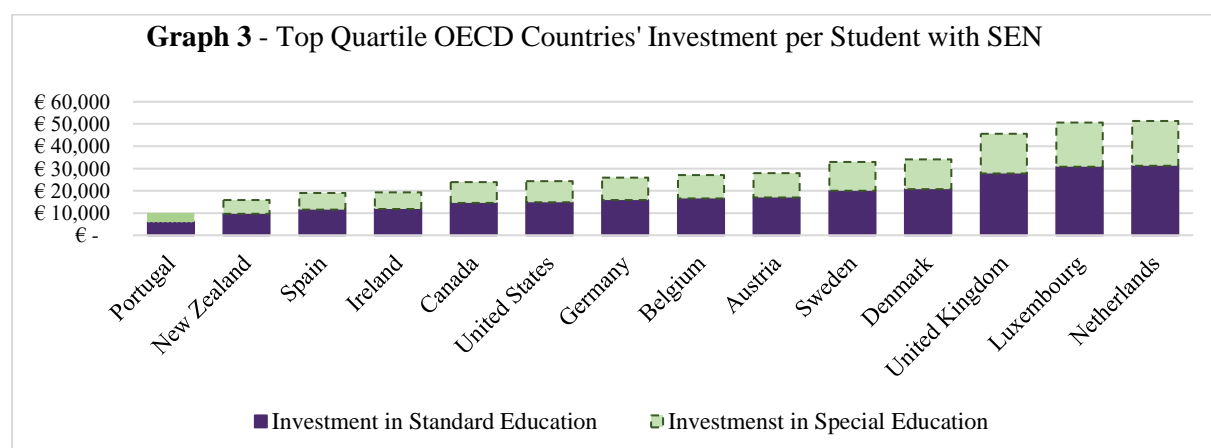
To find how much is invested in these students, the amount that each country invested in education from pre-school to secondary school education was computed. For Portugal, the total public expenditure on education in 2021 was €9,955M (Pordata 2023). This is assumed to include all education levels, from pre-school to tertiary education. The proportion invested in the latter is known, at 0.77% of the 2020 GDP (OECD n.d.a), which was assumed to be the same in 2021. Since the goal is to find the education investment values without tertiary education, the estimated 2021 value for it was deducted to the total education investment. Given this, the total amount publicly invested in education in Portugal from pre-school to secondary school was €7,024M (**Appendix 4**). From this expenditure, according to the European Commission (European Commission 2023), €301M were invested in special education in these education levels, representing 4.3% of total education efforts from pre-school to secondary school.

For the other 13 OECD countries, the reasoning followed was to extract the amount invested in education from the total GDP, and then how much of it was addressed to special education.

By looking at the percentage of public investment in education from pre-school to secondary school as a percentage of GDP of 2020 (OECD n.d.a), assumed as equal for 2021, Sweden was the country that invested more, weighting 5.8% of the GDP, and Ireland was the one that invested less with a percentage of 2.2% (**Appendix 4**). By gathering the GDP in USD from 2021 for these countries (Statista 2023) and multiplying them by the percentage invested in education, the absolute investment in this area was obtained. The GDP value was gathered in USD but converted to Euros using the average exchange rate of the year 2021 of 0.8455 Euros to 1 USD (European Central Bank 2023).

Furthermore, to get to these 13 countries' investment in special education, it was assumed that the percentage of the total public investment in special education from pre-school to secondary school would be the same as Portugal's, 4.3%. (**Appendix 4**). It is important to note that, despite having the same percentage of special education investment, contrasting GDP values and number of students will lead to contrasting country scenarios.

Given the absolute values for the year 2021 and the total number of SSEN, one could compare the 14 countries in terms of investment per student with SEN (Graph 3). This investment not only includes the investment in special education but also the investment in standard education since special education is considered an additional amount to be incurred for these students. Standard education, in this case, refers to all the investment in education excluding the part that refers to special education (**Appendix 5**).



Legend: Portugal is the country with the lowest investment per student with SEN, and each country invests approximately 64% more per SSEN than per standard education students.

By looking at Graph 3, one may conclude that Portugal is the country that least invests per student and consequently the same is true per SSEN, with a total of €9,851. Since a SSEN is impacted by both standard and special education investments, this value corresponds to a total of €6,002 invested in standard education per student, added to €3,849 invested in special education SSEN. The analysis leads to the conclusion that each of the 14 countries invests

approximately 64% more per student with SEN than they do per standard education student. Furthermore, one can confirm that all the other OECD countries that were above Portugal in the Gallup study, invest more in standard education, and thus more in special education per student with SEN.

3.1.3. International Best Practices

There is not one single clear path about how to successfully implement inclusivity in the school system. Throughout the years, countries have been coming up with new measures and making efforts to create bridges when it comes to SEN. To fulfill this purpose, it is key that each country learns from the good practices that are implemented throughout the world. As such, this section is devoted to analyzing some of the best practices regarding inclusive education, which will later – if found to be feasible to be applied in the Portuguese scenario – be included in the Proposed Solutions (section 7. *Solution 1: Increasing Supply of Special Education Teachers* and section 8. *Solution 2: Qualifying Regular Education Teachers*) and, if applicable in the longer term, in the future recommendations (section 9. *Final Recommendations and Conclusions*). The following analysis is not a complete list of what every country does regarding this topic. As such, if a good practice is found in one country, it does not necessarily mean that other countries do not follow similar measures.

In October 2018, the French Ministry of Education organized a conference on inclusive education, in which United Nations representatives took part, to compare approaches taken around the world. Therefore, this conference was analyzed as a structured approach to this benchmark analysis. Besides talking about the different models of inclusive education, the discussion was set around four general topics: “From coordination to partnerships”, “From support to self-sufficiency”, “From specialization to training for all” and “From schooling to social and professional inclusion”.

3.1.3.1. Inclusive Education Models

Before covering the four mentioned topics, the Mainstream setting for education was discussed at the conference. The intervening parties found it to be the most beneficial SEN education setting in comparison with other options. Given this, the countries gathered agreed on maintaining the Mainstreaming setting as a settled basis for further discussion. Concerning this topic, the Boston Consulting Group (BCG) carried out research regarding the different models SEN may be taught in. In general terms, three models were found to be applied: Specialization, Hybrid, and Mainstreaming.

In the case of Specialization, the main purpose is to focus on serving SEN with more complicated needs. It is used in schools designed to offer more intensive personalized attention and specialized services for these students (Hoteit et al. 2022). Some countries that have large percentages of this type of support allocated to their SEN are, in ascending order, the UK, Switzerland, Germany, and Sweden.

The second model is the Hybrid one, where students with and without SEN attend the same school and are, sometimes, in the same classrooms. While some educational content is the same for all students, other is specifically designed for SEN (Hoteit et al. 2022). Countries that follow this model with a significant share are, ascendingly, Spain, Ireland, Australia, France, and Finland.

Lastly, Mainstreaming happens when students with and without SEN attend the same schools, are taught core subjects in the same classrooms, and participate in school activities together for $\geq 80\%$ of school time (Hoteit et al. 2022). Some of the countries highlighted as mainly using this model are Italy, Norway, Portugal, and the USA

Adding up to the predominance this last model has in Portugal, ICF has also shared their interest in the analysis being focused on the specific model, reason why it was assumed as being the desirable one from this moment on.

3.1.3.2. From Coordination to Partnerships

On the first topic – “From coordination to partnerships” – the discussion touched on the fact that, while it is the responsibility of the public education system to ensure that all children are included in school, it cannot work alone. There are various agents whose participation is key to a successful integration, so this section covers the need for supporting teachers and other stakeholders to work under the same system. Among healthcare, social work institutions, local authorities, NGOs, and others, there is an active need to organize this network.

Given that the whole universe of disabilities has multiple singularities and is an extremely complex one, resulting in each student with SEN having their own needs, it is important to accept the premise that no teacher can possess the expertise to speak directly to each and every single one of them. If this is already a reality when it comes to students without any disability, it gains a much higher dimension when focused on SSEN. As such, it is crucial to engage in partnerships between various entities so that, all together, they may have a more holistic approach, which responds better to the students’ needs. For this to happen, the special education staff should receive training that prepares them to work side by side with regular teachers, since these do not receive as much specific training as them. In the end, the concept is to focus on creating partnerships, complemented by a cooperation scenario. If every education stakeholder is involved and willing to work together with different professionals, all of them being crucial for the development of the student in question, then the results tend to be much more satisfactory and the daily work to happen in a much smoother way.

In order to deepen the discussion around this topic, some best practices were shared. In Canada (New Brunswick), in addition to the specific skills required to work in the special needs field, professionals acquire and develop the skills to support fellow teachers, who have less specific training on special needs. Also, in France, there is a growing awareness of the importance of preparing teachers to work with other adults and manage their classes in a way that disabled students are taught in group settings. A specific measure taken is the existence of joint training programs involving education, healthcare, and social professionals. Additionally, the French intervenient in the discussion brought up another measure implemented in the country, which aims for partnerships among education stakeholders: the *Paris Santé Réussite* “Learning Difficulty Prevention” program. Here, a local unit of expert professionals identifies students showing difficulties in reading and arithmetic in the first and second grades, and ensures they receive targeted support right away. By putting different educational stakeholders working together, this scheme helps to assess students at the beginning of their educational path. This way, the action is taken quickly, without having to wait for a disability to be officially recognized, but the only way for this to happen successfully is by making all integral parts of the scheme act in a well-oiled partnership.

Finally, a best practice carried out by Denmark is the Inclusion Matrix (**Appendix 6**), a tool used to support the shift from the specialization model to mainstreaming. This matrix aims to coordinate activities between different specialists and is based on three dimensions. The first focuses on three different levels of inclusion: physical, social, and psychological. As for the second dimension, it concerns the various types of social communities in and out of school, from which a child may be included or excluded. The class is one type of social community, equally important is the membership in the schoolyard self-organized community of children, the bilateral relationships with other children and/or teachers, etc. (Qvortrup, A., & Qvortrup, L. 2018). Lastly, the third dimension is the degree of inclusion. All in all, the point is that a

child is not either completely included or excluded, but included in or excluded from the different communities in different degrees (Qvortrup, A., & Qvortrup, L. 2018).

3.1.3.3. From Support to Self-Sufficiency

Moving on to the second topic – “From support to self-sufficiency” – the conversation lied on the mismatch between the support that SEN get in school in comparison to the one they truly need to reach a happy and fulfilled life, which should come with the development of their self-sufficiency. As such, the main question that prompted this discussion was: *“How to encourage these students to become more self-sufficient?”*.

In the first place, it is important to understand if the efforts being made regarding the support provided are compatible with the learnings that will help each student to lead a fulfilling life. Hence, it is crucial to evaluate the curriculum of SEN and consider what are the areas of learning that will in fact contribute towards their self-sufficiency, as it is the end goal for these students. Given this, the path should pass through providing students with the tools to be able to gradually create a sense of autonomy, through the aid of differentiated support.

In Scotland, for instance, the priority is to prepare students to live independently as adults, and an interesting aspect is the role that digital tools play in reaching this goal. “CALL Scotland”, an organization that operates both as a research center and a service provider and which is mainly funded by the Government, has the purpose of helping Scottish children and young people with SEN to overcome disability and fulfill their potential. In this sense, the organization provides different types of support to students, families, local authorities, and professionals. The support provided relies widely on the use of assistive technologies and other digital tools, whose correlation with a successful learning path within children with disabilities – such as, for

example, Autism Spectrum Conditions – is widely studied. “CALL Scotland” has conducted solid research in this area, empirically supporting their action.

One of the types of provided support in Scotland is a “Pupil Assessment and Support” service for SSEN who require assistive technology and/or augmentative communication. Through an equipment bank, “CALL Scotland” lends assistive technology equipment to SSEN, free of charge, to create a more autonomous and digitally supported way of learning. On average, more than 200 users are provided with equipment loans per year (CALL Scotland 2023). In conclusion, it is crucial to understand if the given support is leading the student to greater self-sufficiency and to explore new ways of delivering it, as seen in the Scottish example.

A second point is the role played by the support workers on the daily basis of SSEN and the possible fine line between receiving their support and creating a feeling of dependency. Human support needs to be provided in the right way, in order to help students become more self-sufficient, not more dependent.

While the existence of specialized staff is crucial for having a properly adapted and individualized curriculum for each student, the line between support and dependency may be hard to distinguish when considering an overly one-to-one approach, where the student interacts almost singularly with the support worker. In Ireland, the role of support workers was revised in 2014, and the features that could create a dependency relationship were changed. Now, the role of these specialized workers is more about helping SSEN to integrate with others in group settings, thus not being segregated– which brings back the topic of the Mainstreaming setting being the one that allows for a more organic integration process. Thus, in this scenario, support workers have a dual role: to help these students make progress regarding the academic curriculum, and also to encourage them to work with other students. Moreover, the support

workers are in charge of drawing a personal plan for each student, and afterward tracking and reporting the progress made towards a common goal of self-sufficiency and independence. Furthermore, it is key to have a multidisciplinary team working with the student, since by ensuring the support comes from various professionals, one can counter any tendency for having a dependent relationship with a single support worker.

The third topic discussed under the second pillar is the development of social skills among SSEN. Returning to the example of Ireland, social skills are an integral part of the curriculum of SSEN (National Council for Special Education n.d.). Furthermore, in Spain (Basque Country), the compulsory school requirement goes until 16 years old, but for SSEN the program can differ. If coming to this age, the student still has limitations related to autonomy, they will be allowed to continue in a mainstream school in a “Task Learning Classroom”, where they perform a basic apprenticeship (16-18 years) and on-the-job training through placement in companies (18-20, 21 years) (Ruiz 2008) (Gaintza et al. 2020). This accounts for the likelihood of these students experiencing higher difficulty regarding social and adaptability skills and allows them to finish their studies at their own pace.

3.1.3.4. From Specialization to Training for All

The discussion moved on to the third topic – “From specialization to training for all”. The Mainstreaming model can only work if an emphasis is placed on raising awareness and providing the right training for all personnel involved. Therefore, this topic explores how teachers may be trained to face this reality of diversity among their students. What is the role each teacher should play? What can be adapted in their normal course of action to accommodate the different needs of different children? Lastly, what may be changed in the training that teachers receive to prepare them to face this reality?

The first point raised was the decentralization of the training curriculum, by allowing it to be set locally, by specific schools. Delving into Canada's example, Quebec's education system is a decentralized one, with both the organization of the services and the schooling decisions being made locally. There are general public guidelines given to schools, but the support that is actually offered to these students is given as a consequence of an individual determination of students' needs and abilities. Thus, each school is allowed to diagnose the actual existing needs, draw up an action plan with the input of various education stakeholders, and later ask for the corresponding services to be provided. This allows each school to get the resources it truly needs, with the specializations that will in fact be useful in each context. Another example is the UK, which works with a decentralized education system among the four constituent nations, even though a common approach is shared. This setting may work in some countries better than others, as it depends on many factors such as the organization of resources, the size of the country, and the political settings, to name a few. Nevertheless, it is still an interesting benchmark of a possible method for coordinating existing resources, as well as understanding which types of training are truly needed among teachers, as each school evaluates its true needs.

Moving on to the second point, the actual delivery of the training varies from country to country. Taking Canada (Quebec) as an example, primary and secondary teachers need to complete four years of training, where education adaptation issues are covered among the obligatory topics to get the diploma. Subsequently, there is an undergraduate program specialized in educational and social adaptation, as well as a postgraduate degree for people who have already completed the subject-specific training. The specializations aim to prepare teachers for two roles: to teach a special class and to support regular teachers in dealing with SSEN. In France, ESPES (Education Universities) must deliver inclusive training to all teachers as a part of the mandatory training curriculum, even though each college is free to determine the exact number

of hours dedicated to this. Besides this, the Ministry of Education is responsible for offering continuous professional development.

In Italy, the inclusive system is based on a co-teaching concept, where, in addition to the regular teacher, the classes have a specialized teaching assistant responsible for supporting SEN. For this role, a two-and-a-half-year program is required. Moreover, all teachers receive specific training as a part of their mandatory qualifications. Another measure taken in this country is the fact that teachers receive continuous training, during their professional lifetime, which has *à la carte* training options, with teachers being allocated a training allowance so that they can study at their own pace. A practical example of those is an e-learning platform, called “*Dislessiaamica.com*”, which, in agreement with the Ministry of Education, offers free e-learning training courses aimed at teaching staff. One offered program was called “Dyslexia Friendly Advanced Level” and occurred from 2016 to 2021. During this time, Dyslexia Amica saw 7,182 state schools join at least one edition of the e-learning course, representing 84% of Italian state schools. Over 235,000 teachers have successfully completed the training phases, taking advantage of approximately 8M hours of training (Associazione Italiana Dislessia n.d). As for England, they also explore digital tools, with the existence of an online portal where teachers may access documents, resources, and self-guided learning modules.

Summing up, each country has its own training structure, but there is a common ground when it comes to providing regular teachers with the ability to deal with inclusion on a daily basis. Moreover, there are interesting initiatives that aim to continuously train teachers for this purpose, and online options can be an effective path to do so.

3.1.3.5. From Schooling to Professional Inclusion

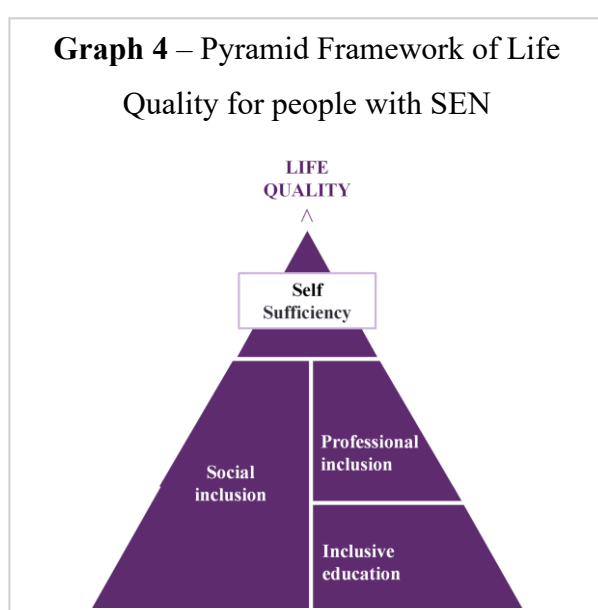
The last discussion point explores the topic “From Schooling to Professional Inclusion”. As professional inclusion is a key step in the path towards self-sufficiency, it is crucial to understand whether the support measures set in school are the right ones to foster inclusion in the labor market. Also, there are specific mechanisms that may be used to support SSEN in their transition from education to employment, and thus increase the likelihood of success.

Firstly, the curriculum offered to SSEN must help them gain the right skills that, years later, will be required for them to thrive in the job market. Even though social skills have already been covered, there are more that may be worked on, and support during school time may be given. In Finland, career guidance and support starts being provided at primary school, and at secondary school there are specialist career guidance staff to members fulfill this purpose. Once SSEN leave school, the “Youth Guarantee” ensures the right of all young people under 25 and graduates under 30 the right to employment, or to vocational training if unemployed. Over the past 15 years, the number of students in secondary and higher education has marked an increase. Consequentially, at the time of the conference, 20% of young working-age PwD were in full-time employment, 50% were in temporary employment or in a subsidized contract in the past two years, and 30% had a high capacity for work.

Secondly, after ensuring SSEN receive the necessary support to prepare for this transition, there are measures that can be taken to ease the process of the transition itself. For example, in the UK (England), there is a support system called the “Merton Transition Team” whose goal is to smoothen the transition to adulthood, targeting SSEN up to 25 years old. The system is based on advice, assessment, planning, and support (Merton Council 2017).

Thirdly, despite being crucial to prepare SSEN for the job market, governments must ensure that the job market is open to receive them as well. However, as this leaves the educational scope that this Work Project intends to follow, it was not further analyzed.

In summary, this conference allowed for the sharing of good practices in various areas which, all together, ensure that the time spent in school by SSEN is giving them the right tools to develop and fulfill their life projects, in which their abilities and strengths are valued.



Legend: To obtain Life Quality among PwD, Self-Sufficiency is key, and is supported by three parameters.

reach their own Self-Sufficiency. This is what will allow them to build their own path, with the lowest possible dependency from external parties – knowing that the form that Self-Sufficiency may acquire depends from person to person.

To reach Self-Sufficiency, Professional Inclusion plays a major role, since it is not only what brings financial stability, but also what allows for a more complete inclusion, where the application of the main strengths and skills of PwD results in a valuable contribution to society,

After performing the benchmark analysis regarding the best practices followed internationally, a framework was developed regarding the path followed by PwD towards Life Quality, to accommodate the best practices found (Graph 4). Following a deductive approach, one may state that, generally, the life goal of a person is to obtain Life Quality – in other words, to feel happy and fulfilled. For PwD, this Life Quality comes mostly out of being able to

along with their continuous development of important life skills. However, for this Professional Inclusion to be successfully done, Inclusive Education is key. While it is mandatory for PwD to go to school, the quality of the time spent there may truly determine their future path. If done correctly, the Education system has the power of providing the right tools for SSEN to be prepared to work autonomously and reach their independence in life.

Summing up, to reach Life Quality, PwD should strive for Self-Sufficiency, which comes out of Professional Inclusion, which is previously supported by Inclusive Education. However, there is a parallel aspect of both Professional Inclusion and Inclusive Education, which is also a crucial factor for Self-Sufficiency: Social Inclusion.

The human being is inherently social, and the way society itself is organized is an exact reflection of that: people gather themselves in families, groups of friends, they work with and for other people, and the list continues. However, more than a way of organization, the social behavior of the human being is vital for its health and survival (Young 2008). Logically, for PwD, the scenario is not any different. The feeling of belonging in a social environment is a necessary condition in the pursuit of Life Quality, and this is true for both the Inclusive Education aspect and the Professional Inclusion one. In fact, it is a complementary condition for these two parameters to be fulfilled. For the first, one of the main goals of the school is the development of social skills and the interaction with other peers. As for the second one, the professional inclusion of PwD also has the function of integrating them into society, among other people. By having social inclusion fulfilled in these two areas, Self-Sufficiency may be achieved – independently of how it looks like for each person, leading to the goal of Life Quality. Having this framework set, the next step was to consolidate the benchmark analysis previously done and to sort the best practices found into these three areas: Social Inclusion, Inclusive Education, and Professional (**Appendix 7**).

3.2. National Practices

In order to see whether Portugal is following the right path towards having exemplary international best practices, one needs to investigate the goals set under this topic and the consequent efforts being made at a national level.

In 2021, the “ENIPD 2021-2025 - National Strategy for the Inclusion of Persons with Disabilities National” report was developed, to set a concrete strategy regarding the inclusion of PwD. This was built by *Instituto Nacional para a Reabilitação* (INR), which is a public institute under the Ministry of Labor, Solidarity, and Social Security in Portugal, responsible for ensuring the planning, execution, and coordination of national policies aimed at promoting the rights of PwD (INR n.d.c). Under the topic of education, two main goals were established.

The first goal is to strengthen the mechanisms to support the learning and consolidation of the current inclusive education system. To achieve this, two objectives were set, focusing on the intervention from pre-school to post-school years.

One of the objectives is to reformulate early childhood intervention, which goes by the name of *Sistema Nacional de Intervenção Precoce na Infância* (SNIPI), that aims for children with disabilities to have access to high-quality education and support from an early age, which will facilitate their transition to inclusive education, as well as improve their academic performance and social inclusion (SNIPI n.d.). Additionally, the second objective is to deepen the inclusive education model, when it comes to the access to quality educational opportunities and the transition to post-school life, which translates into improving the access to quality education and training opportunities for SSEN.

The second identified goal is to promote higher-level qualifications for PwD. For this to happen, there were two underlined objectives: the improvement of the access and attendance of PwD to higher education, and the improvement of the physical accessibility conditions. This goal,

despite being crucial for the inclusion of PwD, was not further considered in this analysis, as it leaves the scope of the project.

Focusing on the first goal in Portugal, and on what is being done to achieve it from pre-school to secondary education levels, some measures were identified in the three intervention areas: Social Inclusion, Inclusive Education, and Professional Education.

Looking at Social Inclusion, the practice in which Portugal is excelling the most is the application of the Mainstreaming model of education, showing a predominance relatively to the other models presented, with 84% of SSEN being integrated into it (Hoteit et al. 2023). Furthermore, Portugal is making efforts to bring the discussion regarding inclusion to the table, so that everyone is on board – not only those who experience this situation closely. An example is one simple yet innovative practice: the *Escola Alerta!* competition, promoted by INR, whose aim is to motivate young students and the overall school community to be more sensible towards the topic of the inclusion of SSEN. This targets students from the 1st to the 3rd cycles, both from private and public schools, by encouraging them to present feasible and innovative proposals that contribute to the improvement of the quality of life for PwD. By inviting all students to participate with ideas for a greater and better inclusion in the school and the surrounding community, this competition fosters a culture of awareness and active participation towards SSEN inclusion.

Looking at the second area – Inclusive Education – the Decree-Law no 54/2018, July 6 states the most important measures being implemented, ensuring that inclusion becomes a process addressing the diverse needs of every student by promoting a greater participation in learning activities and within the overall educational community.

One of the characteristics of the Portuguese model is the organization by levels of intervention, which vary in terms of type, intensity, and frequency of interventions, and are determined based

on the needs of students. These three levels of intervention are Universal measures, Selective measures, and Additional measures, and the principle is that they should be mobilized throughout the student's school career, depending on their educational needs.

According to the Decree-Law no 54/2018, the first type of measures – the Universal measures – are available to all students, including those who may later need to benefit from selective and additional measures. The objective of these measures is to improve the overall learning environment. These can be, for instance, the promotion of pro-social behavior, curricular enrichment, or curricular accommodations. Secondly, the Selective measures result from the student's response to the universal measures and are activated when the learning support needs are not met by the application of the previous ones. These are usually destined for students at risk of school failure or for those who need extra support. Some examples of measures for this category are differentiated curricular pathways, tutorial support, or non-significant curricular adaptations. Lastly, the Additional measures are applied when the previous two are not sufficient for students. These measures are destined for students with higher and persistent difficulties in communication, interaction, cognition, or learning that require more specialized resources, such as significant curricular adaptations or the development of personal and social autonomy skills.

Moreover, both selective and additional measures must be stated in the *Relatório Técnico-Pedagógico* (RTP), a document stating the needs and individual plans for SSEN. This document is built by the *Equipa Multidisciplinar de Apoio à Educação Inclusiva* (EMAEI) alongside the student's legal guardians or parents and any other agent that might be relevant (Decreto-Lei n.º 54/2018 2018).

The EMAEI is another Portuguese practice, composed of the co-adjunct director, a special education teacher, three pedagogical coordination members from the pedagogical council, the

class teacher, other relevant teachers, technicians from the *Centro de Recursos para a Inclusão* (CRI), and other professionals involved with the student. Its responsibilities include promoting inclusive education awareness, proposing and overseeing learning support measures, advising teachers on inclusive pedagogical practices, and producing the RTP (Decreto-Lei n.º 54/2018 2018).

In addition to these measures, CRI, one of the members of the EMAEI, was created by the Ministry of Education, with the objective of helping students with additional measures. The CRI technicians are especially important in their participation in the classroom alongside these students, ensuring the well-functioning of the mainstream model (Decreto-Lei n.º 54/2018 2018).

Lastly, within these measures for an inclusive education, the *Centro de Apoio à Aprendizagem* (CAA) is a structure that aggregates the human and material resources needed, the knowledge and skills of a school, to support every student. This center not only helps the inclusion of students up until secondary school, but it also has the objective of helping them in the transition to post-school life (Decreto-Lei n.º 54/2018 2018). Furthermore, these promote greater openness of schools to the community, by establishing partnerships with local organizations/institutions that support them in implementing their educational projects and mobilizing the necessary complementary resources (Ribeiro et al. 2022).

This last measure creates the bridge to the last area of national best practices – Professional Inclusion – having *Plano Individual de Transição* (PIT) identified as one of the most meaningful ones. The PIT is an individual program tailored to the student's interests, skills, and expectations, designed to promote the transition to post-school life and, whenever possible, to pursue professional activity. It promotes, for example, the participation of these students in experiences such as volunteering or job shadowing, allowing them to find a vocation which can

lead to a sense of contribution to society and to the pursuit of a path of self-sufficiency. It is an integrant part of the additional measures and is developed by the EMAEI three years before the compulsory school-age limit for SSEN.

Knowing now the principal measures applied in Portugal, the Decree-Law n.º 54/2018 also addresses the process of applying them.

The process starts off with an identification of the need for support measures for a specific student. The identification can be done by the teachers, parents/guardians, or other entities involved in the student's academic life. Despite for students with diagnosed disabilities this identification step being a more obvious one, for others it can be less straightforward. Therefore, the involved agents must be attentive and critical to be able to recognize this necessity for the student.

After those who are responsible complete the identification step, they must present their reasoning to the school director, who will present the evidence to the EMAEI. These will analyze the available information and evaluate the situation after meeting with the parents, the student, and with any other relevant agent.

Then, considering all the information, it is the job of the EMAEI to define which measures to implement. As previously stated in this section, there are Universal, Additional, and Selective measures, that can be implemented as many as necessary and from different intervention levels. Moreover, there are no permanent measures, meaning that said measures can be removed if they no longer apply. For Selective and Additional measures, an RTP must be written by the EMAEI, and, if "*Adaptações Curriculares Significativas*" is defined, a PEI (*Programa Educativo Individual*), which is a personal plan, must be attached to the RTP. The RTP will state all measures applied, including the amount of time the student must spend in class and in the "*Centro de Apoio à Aprendizagem*" and state whether the situation requires a class size

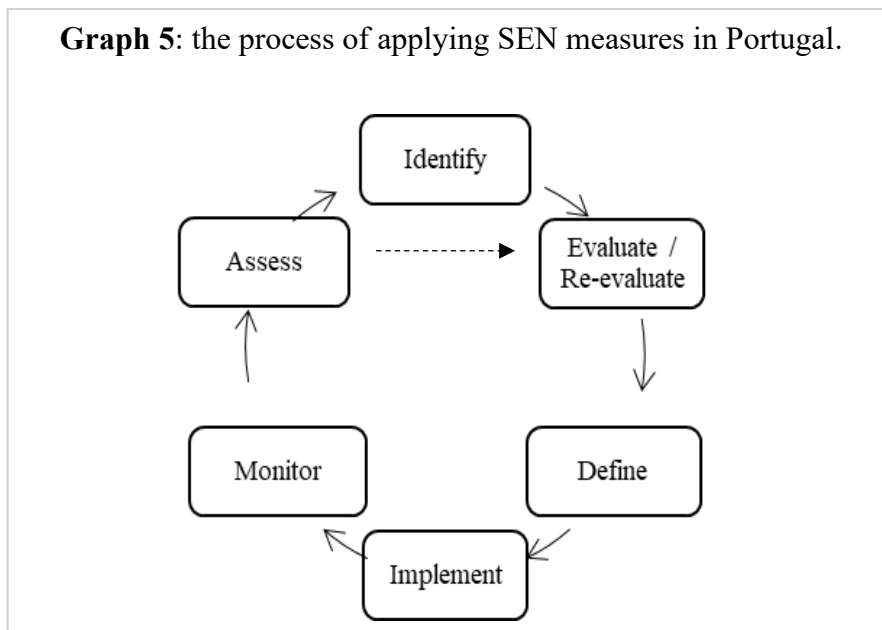
reduction below the minimum legal value. If only Universal measures are defined, the process is returned to the director who passes it to the teacher responsible, and then the teacher sends it to the parents for approval. The entire process since the identification takes 13 weekdays, at most. However, if an RTP had to be written, the process goes first to the parents for approval and is only after sent to the director who approves it after hearing the pedagogical council. This process can take up to 45 weekdays (Pereira et al. 2018).

Following the definition of measures, comes the phase of its implementation. This implementation should start immediately after receiving the approval of the measures by the director. The role of the special education teacher (who is part of the EMAEI) will become particularly relevant in this stage by acting on two fronts. Firstly, through cooperative work with the relevant agents on the educational path of the student, and secondly through direct support to the student to complement classroom work.

The next that follows is the monitoring one. This part of the process must happen regularly, and it is the responsibility of the EMAEI. It is recommended the EMAEI establishes instruments and mechanisms that gather information routinely to support the next stage (Pereira et al. 2018).

The last part of the process is assessing the effectiveness of the measures. Making use of the information gathered with the monitorization, and analyzing the evolution and performance of the student, the multidisciplinary team can assess the success of the measures implemented and use it to guide future decisions (Pereira et al. 2018). Namely, if the measures had the expected impact and whether the student will still need them in the future, requiring a re-evaluation.

This is a continuous process, meaning it actively works for as long as the student needs specific support measures (Graph 5).

Graph 5: the process of applying SEN measures in Portugal.

Legend: The application of SEN measures in Portugal has a continuous process underneath it.

The existence of these mentioned practices allows for the Portuguese education curriculum program to be adaptable to the needs of each student. These measures work as a way to create increasingly inclusive environments within schools, ensuring solid building blocks for SSEN to reach self-sufficiency and the desired life quality.

3.3. Best Practices Mismatch

Having analyzed what is being done worldwide and the measures being taken in Portugal, the final step in this section is to understand what the existent mismatch is, and what international best practices could, therefore, be possible paths for Portugal to undertake.

Referring back to the Pyramid Framework, the mismatch was analyzed according to the three parameters: Social Inclusion, Inclusive Education, and Professional Inclusion.

Starting with Social Inclusion, the efforts made towards the development of social skills among SSEN in Portugal, do not seem to be sufficient. While it is true that the personal plans developed for these students may involve social development – even though not always in great depth – and that the predominance of the Mainstream setting is clearly the path that most fosters

integration, there is a lot of work to be done. Throughout the development of this Work Project, the research done has proved that, even though the correct measures may be in place, their enforcement is crucial, and Portugal still needs to improve on that point.

Moving on to the second parameter – Inclusive Education – there are some examples of international best practices that are not taken in Portugal. For example, the use of Assistive Technology, as seen in the Scotland case, could be an innovative approach to learning. While one may argue that schools do not have the resources to do so, the Scottish example shows an efficient way of overcoming this obstacle, with the Equipment Bank working through loans of equipment. This investment on a generalized availability of assistive technology could be an interesting path for Portugal to explore, and to innovate the SSEN learning approach.

Another point in which Portugal seems to lag behind is the use of digital tools. The England case has been analyzed, regarding the existence of a unified online portal for teachers to use containing resources, documents, and even self-guided learning modules. This a good example on how digital tools may be an efficient path to approach teacher training and even to facilitate their daily work.

Finally, still on Inclusive Education, a measure taken in some countries is the extension of the time spent in school after the mandatory age, when the student benefits from it. In Portugal, there is no specific legislation that covers the extension of the permanence in school with any special requirements in comparison to students without SEN.

Moving on to the third and last parameter – Professional Inclusion –some practices were also identified as possible paths for Portugal to undertake. While the PIT helps prepare students for the transition to life after school, some countries have actual support systems that provide advice, assessment, planning, and support after these students leave the school system. This measure helps this process happen in a much smoother way.

There are also countries that have measures guaranteeing the right to employment for young people and providing solutions in cases where they cannot find a job, such as vocational training. While there are some solutions in Portugal, they are not enough to cover up for the issue that is to find a career path for a person with disabilities after school.

This list is, of course, not collectively exhaustive, and there are some measures which are not analyzed to its full extent which could possibly be a good path for Portugal to follow. Nevertheless, here lie some good examples of areas to be explored.

Coming back to the top OCDE countries that were defined as being examples to look up to, following the ranking of receptivity towards people with intellectual disabilities developed by Gallup, a new analysis was performed. By crossing the values for the investment done per student with SEN with the best practices found for these countries, tiers were created, with the goal of seeing if, among the best practices analyzed, some corresponded to the countries seen as highly receptive and to those dealing with higher investment levels. Furthermore, Portugal was also analyzed in comparative terms with these countries.

Four tiers were defined with investment per SSEN intervals of €10,000 (except for the last one, which has an open interval), composed by Portugal and the remaining top OCDE countries above it. The aggregated analysis can be seen in **Appendix 8**.

The fourth tier, whose investment values range between €0 and €10,000 per SSEN, only accommodates Portugal. This shows that, despite showing some interesting practices, the investment made per student with SEN is still fairly behind the one made by these comparable countries.

The third tier, which comprises the values between €10,000 and €20,000, is composed of New Zealand, Spain, and Ireland, in ascending order of investment. This interval corresponds to some of the best practices highlighted regarding Social Inclusion, such as the Mainstreaming

being the predominant model used among almost all countries, and the social skills being included in the academic curriculum of SSEN. As for Inclusive Education, some best practices can be highlighted, such as allowing for SSEN to stay in school longer than the maximum age, and the creation of an individual and personalized plan per SSEN. Lastly, regarding Professional Inclusion, none of the practices analyzed corresponds to any country in this tier.

Moving on to the second tier, whose values of investment range from €20,000 to €30,000, the analysis now focuses on Canada, the United States, Germany, Belgium, and Austria, in ascending investment order. As for Social Inclusion, the majority of these countries follow the Mainstreaming model. Moreover, for the Inclusive Education parameter, some best practices were associated with these countries. Regarding teacher training, here lie the examples of including specific training for SEN in the mandatory curriculum for all teachers and training Special Education Teachers (SET) to support regular teachers. As for the methods used in special needs education, another relevant practice is the creation of a multidisciplinary approach towards education, combining different specialists. Lastly, as in Tier three, none of the practices analyzed corresponds to any country within this category.

The first tier comprises values of investment above €30,000. In this category, five countries are identified: Sweden, Denmark, the United Kingdom, Luxembourg, and the Netherlands, in ascending order. Regarding Social Inclusion, these countries have, as the previous ones, the best practice of mostly using the Mainstreaming setting. Moreover, Denmark stands in this Tier, thus corresponding to the best practice followed by the country of having Social Inclusion as a central topic on the holistic evaluation done of the student, coming from the concept of the Inclusion Matrix. For the Inclusive Education parameter, the best practices that stand out within these countries are the use of digital tools, such as Assistive Technology, and platforms for the teachers to use. Lastly, for Professional Inclusion, this tier boasts one of the best practices analyzed: the system to support the transition to adulthood.

Hence, it is possible to understand that, among the analysis done of the discussion under the French conference, there are many practices that are reflected within the countries followed in this Work Project as good examples. Furthermore, it can also be seen that, with an increased level of investment, more practices may be associated with the countries corresponding to the tier. Lastly, Portugal stands out as having a much lower level of investment per student with SEN. An increase in this value should allow the country to focus more on following the steps of the countries in the tier above.

4. Demand

How to quantify and assess the needs and patterns of Special Education demand?

4.1. Segmentation

Before quantifying demand, it is key to develop a detailed understanding of the diversity among the disabled population, in order to develop a strategy that speaks directly to the target's needs. In this sense, a crucial first step involves the segmentation of the PwD.

The purpose of said segmentation is to be able to conduct the research in an assertive way and to, later on, produce different approaches according to each type of disability, when necessary, supported by the belief that, in this scenario, one size certainly does not fit all.

The first segmentation methodology chosen was to divide the whole population by type of disability. Additionally, when possible, the segments created were associated with recruitment groups of SEN teachers, a topic which will be further explored later on (section 5. *Supply*). This allows one to create a bridge between the segments created and the analysis which will take place in the following chapters.

Aruma, an Australian NGO which has operated for nearly 60 years to support people with disabilities (having only existed under this name since 2018), has made a segmentation proposal which was found suitable for the sake of this project. According to the established model, disability may be divided into four different types: physical, sensory, intellectual, and mental illness (Aruma 2021).

A physical disability is one that may affect, either temporarily or permanently, a person's physical capacity and/or mobility. As for the sensory disability, it occurs when there are any kind of impairments within the senses (e.g. sight, hearing, smell, touch, taste). Sensory disabilities can be associated with teacher recruitment groups 920 and 930. Given that 95% of

the information about the world comes from sight and hearing (Aruma 2021), this type of disability truly changes one's perceptions and ways of interacting.

Looking into intellectual disabilities, the common characterization is the one of an IQ below 70 – given that the world average lies around 89 (Lynn and Meisenberg 2010) – as well as facing some difficulty with daily tasks such as self-care, safety, communication, and socialization. People with an intellectual disability may process information more slowly, have trouble with communicating and a harder comprehension of abstract concepts, such as money and time (Aruma 2021). This category can be attributed to recruitment group 910 and associated with some examples, such as Down syndrome or developmental delays.

Lastly, mental illnesses significantly affect how one feels, behaves, and interacts with other people, affecting the perceptions one has of the world. These can be permanent, temporary, or come and go. Just as with the previous difficulty, mental illness can be associated to recruitment group 910. Common examples would be bipolar disorder; depression; anxiety disorders; schizophrenia; and anorexia; among many others.

Having set these four types of disability, a second segmentation was performed, parallel to the previous one, which lies in differentiating the students with SEN regarding their degree of difficulty.

In Portugal, there is a document – “*Atestado Médico de Incapacidade Multiuso*” – which translates, in percentage terms, the degree of disability a person has. It serves the purpose of providing a guide in the attribution of multiple social, tax and economic benefits to its holders, depending on their degree of disability (SNS24 2023). This document is the result of an evaluation carried out by a medical team and done under the supervision of the “Regional Health Administrations”. If the percentage given lies between 60% and 80% (non-inclusive), then the person is considered to have a moderate disability. If the result is equal to or higher

than 80%, then the disability is considered a serious one (*Observatório da Deficiência e Direitos Humanos* 2022). This differentiation will be later on considered, especially when taking into account the amount of support in school required by each student with SEN, as it differs a lot considering the degree of disability.

Given this, for the entire extension of this Work Project, both these four types of disability and correspondent degree will be considered, when necessary, and conforming to the segregation that makes sense in each situation.

4.2. Quantifying Demand in the Portuguese Public School System

In order to draw impactful recommendations and solutions that foster inclusivity and support for SSEN in Portugal, a fundamental aspect of this Work Project consists of a demand quantification. Understanding the size of the SSEN population across different levels of education, as well as mapping out the most impacted regions is a key insight required to develop targeted interventions. Not only is this step important to understand the scale of the challenge, but to identify the areas that need the most support when it comes to education level and regions. Furthermore, this quantitative approach has the purpose of quantifying SSEN regarding their specific needs and struggles, matching the students to the aforementioned segmentation method, to help plan targeted support.

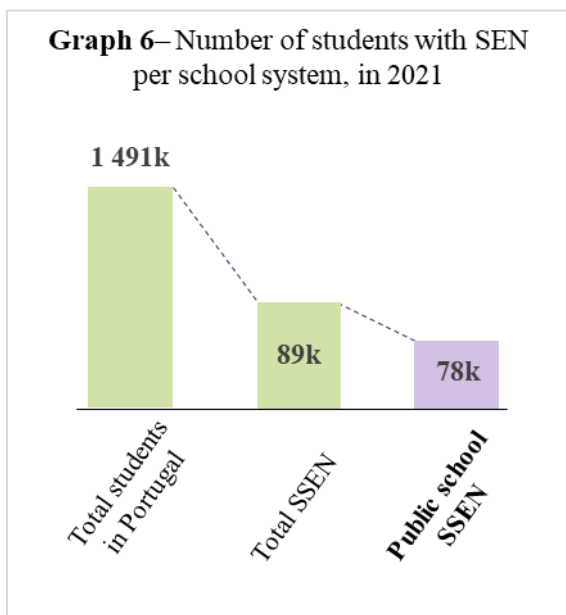
As 2021 is the most recent year with comprehensive information on the disability landscape in Portugal, it was the year from which data was considered. Although in some analysis data from more recent studies is available, the commitment to preserving consistency and data richness led to the choice of considering 2021 as the foundation for said analysis, maintaining a uniform timeline.

As the main sources of data for this analysis, two relevant reports were considered and analyzed. An inclusive education report by DGEEC, “*Educação Inclusiva 2020/2021 – Apoio à*

aprendizagem e à inclusão, escolas públicas de rede do Ministério da Educação”, as well as Edustat’s 2023 report regarding 2014-2018 named “*Necessidades Especiais de Educação*”, with the latter being considered to forecast data, due to its detail and insight level.

4.2.1. Demographic Breakdown

In the academic year 2020/2021, Portugal had a student population of 1,490,507 students ranging from pre-school to secondary school, from which 1,120,243 students attended public schools, excluding the islands (DGEEC 2021). According to the same set of public data regarding the same period, there were 78,268 students getting some type of SEN inclusiveness support measures in public schools, representing 7% of the total number of public school students. These support measures include the selective and additional measures that were previously explained in this report (section 3.2. *National Practices*). 5.5% of the mentioned number of students that get support, only get selective measures and 0.3% only get additional measures, whereas 1.1% receive a combination of both.



Legend: The majority of SSEN are in public schools.

Considering the aforementioned Decree-Law nº 54/2018 that states that every student has the legal right to get inclusive support measures in public schools, the reported value of 78,268 students is considered to represent the total SEN population in public schools.

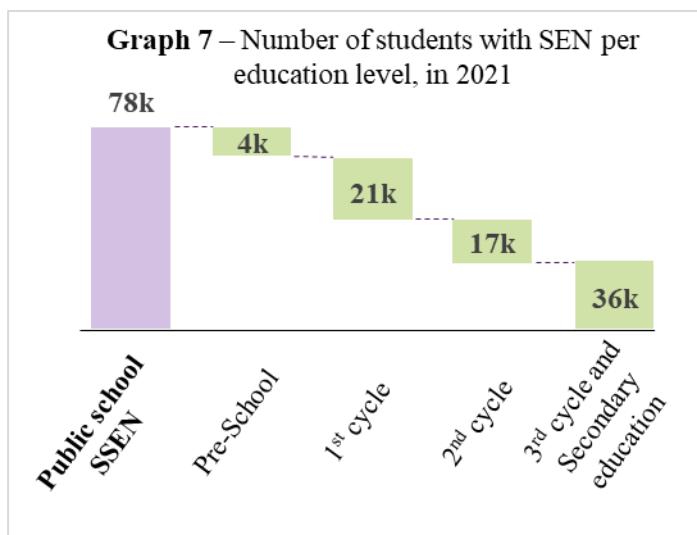
Despite it being out of scope, it is in any case important to quantify the number of SSEN in private schools. So, considering historical data from 2014-2018, a weighted average was considered to estimate this value for 2021.

Averaging 88% of SSEN in the public school system (Edustat 2023), one can estimate 10,861 in the private school system, totaling 89,119 SSEN in Portugal, as seen in graph 6.

Having quantified the total number of SSEN, it is important to understand the distribution of these students across different levels of education.

To maintain consistency with the supply side data (section 5. *Supply*), the 3rd cycle of basic education and secondary school are displayed in one bucket, instead of separately. This adjustment ensures that the analysis aligns seamlessly with the structure used for the supply side, to guarantee comparability and to make sure all conclusions can be insightful.

To perform the analysis, historical data was considered to come up with a weighted average of SSEN per education level, from which key data was derived: 5% of SSEN are in pre-school, 27% and 22% are in the 1st and 2nd cycle of basic education, respectively, whereas 46% are in the 3rd cycle of basic education or secondary school (Edustat 2023) (**Appendix 9**). Applying these weights to the known number of SSEN in the public school system, one can properly break down demand.



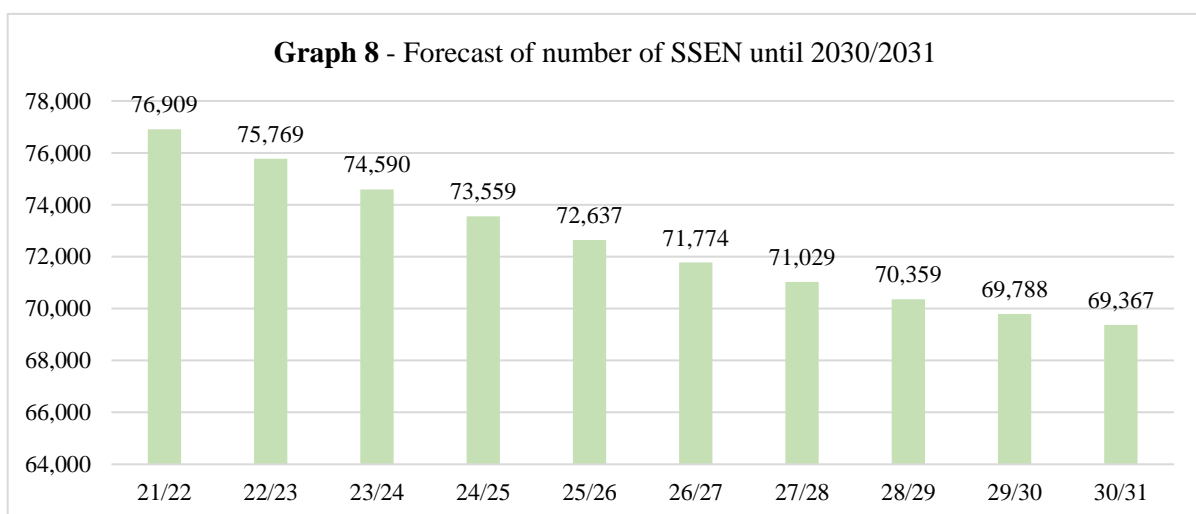
Legend: Most SSEN are in the final levels of education.

As illustrated in graph 7, the most represented group would be the 3rd cycle of education and secondary school, with 36,036 SSEN, followed by the 1st and 2nd cycles of basic education, with 21,259 and 17,414 SSEN, respectively, whereas the education level with the smallest number of SSEN is pre-school, with 3,559. Despite merging the two

categories into the same bucket, it is worth mentioning that there were 24,410 SSEN in the 3rd cycle of basic education and 11,627 in secondary education. Comprehensive details about the number of students per grade can be found in **Appendix 9**, where 6th and 7th grade can be identified as the grades with the most SSEN, 9,012 and 8,943, respectively. On the other hand, 1st and 12th grade are the ones with the least SSEN, 2,217 and 2,748 respectively.

When it comes to projecting these values into the future, according to a 2021 report from the Nova Knowledge Center supported by DGEEC, the total number of students is expected to decrease, as 960,919 are estimated for 2030/2031 (DGEEC & Nova Knowledge Center 2021). This decrease is attributed to demographic trends, reflecting a decline in birth rate and an aging factor. Said trend has already manifested in the past decade, with a notable 11.7% decrease in the student population from 2011/2012 to 2021/2022 (Forum Estudante 2023).

In light of these trends, the forecast of the number of SSEN assumes that the percentage evolution of the total student population is proportional to the evolution of the total number of SSEN. Consequently, the projected total number of SSEN for the current year is 74,590, representing a 4.7% decrease from the 2020/2021 figures. The projection for the upcoming years can be analyzed in Graph 8, where 69,367 SSEN are forecasted for 2030/2031.

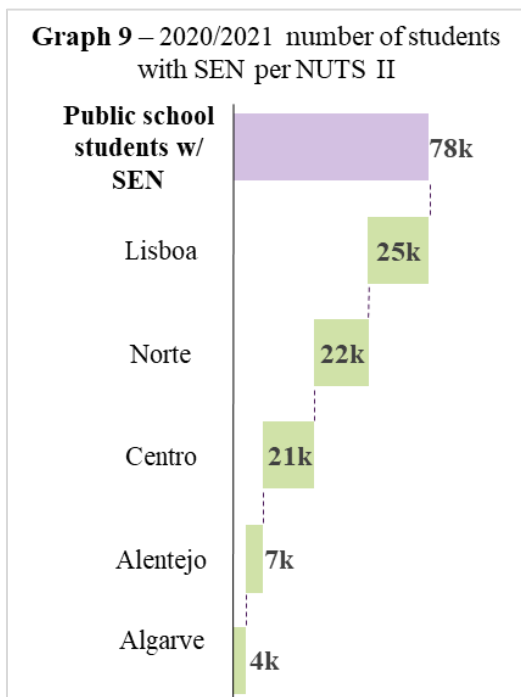


Legend: The number of SSEN is expected to follow a decreasing trend.

4.2.2. Geographical Analysis

In order to further comprehend the landscape of demand from SSEN in Portugal, a geographical deep dive becomes a crucial aspect of the analysis. In this sense, this section delves into the task of geographically mapping the demand identified in the previous chapter, across the country’s Nomenclature for Territorial Units for Statistics (NUTS). NUTS II divides Portugal into 5 territorial units, *Área Metropolitana de Lisboa*, *Norte*, *Centro*, *Alentejo*, and *Algarve*. NUTS III breaks these units down into a more granular level, resulting in 23 subregions. The purpose of the analysis is to understand the needs across various regions, to identify potential disparities and challenges, providing a solid tool for the designing of appropriate solutions.

To estimate the number of students per NUTS II region, a weighted average approach was considered, taking into account historical data. By averaging the weights per region with Edustat’s data from the 2014-2018 period and applying them to the known number of 78,268 public school SSEN for 2021, one can estimate the proportional distribution of SEN students per region.



Legend: Most SSEN are in Lisbon.

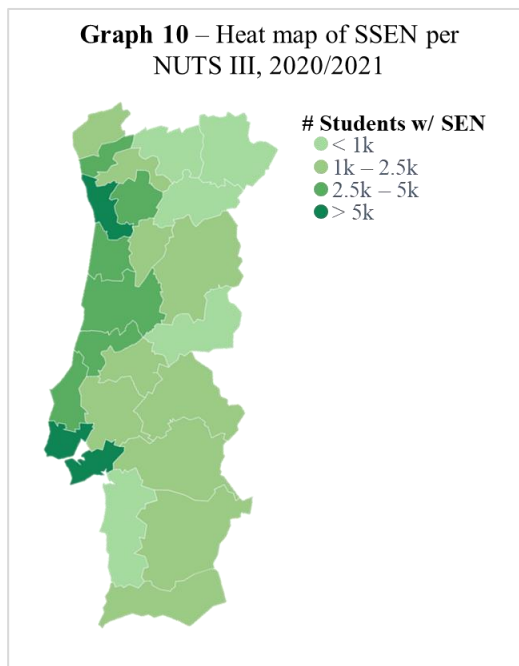
As seen in Graph 9, the most predominant region when it comes to SSEN is *Lisboa*, with an average of 32% of the population at stake, leading to the conclusion that there were 24,890 students with disabilities in the country’s capital city, in 2021. Furthermore, it exhibits an average incidence of 5.2 SSEN, for every 100 students. Following closely, the *Norte* and *Centro* were the NUTS II regions with the most SSEN, with 21,543 and 20,913 respectively. These two regions held incidence rates of 4.1% in the

Norte and 6.7% in the *Centro*, making the *Centro* the second largest incidence region, as seen in **Appendix 10**.

Despite hosting less than half the SSEN than the previously ranked regions, amounting to 7,123 students, *Alentejo* had the highest incidence of SEN per student, with a rate of 6.9%. With the lowest number of SSEN and the second lowest incidence rate, *Algarve* is the remaining NUTS II region to cover. It had 3,799 SSEN, representing 5% of the respective population and a rate of 5.1 SSEN for every 100 students.

When delving a deeper level into the analysis, a new purpose was set with the goal of understanding the SSEN distribution across the 23 mentioned subregions of NUTS III, becoming a crucial microanalytic view that empowers the solution analysis.

To estimate the number of SSEN per NUTS III region, the incidence rates highlighted in **Appendix 11** were explored. The methodology involved the assumption NUTS III regions have the same incidence rates as their parent NUTS II regions (**Appendix 10**). Under this assumption



Legend: Most SSEN are in the coast of Portugal.

and having gathered the 2020/2021 data for the total number of students per NUTS III (DGEEC 2021), the distribution of SSEN per subregion was calculated by applying the incidence rates to the respective subregions. In order to have a visual understanding of the areas that have the highest number of SSEN, a heat map was drawn (see Graph 10).

As seen in the heat map, the Portuguese coast hosts the largest number of SSEN, with the areas surrounding the big cities of *Lisboa* and *Porto*

being the ones with higher incidence. The only subregions with more than 5,000 SSEN are the metropolitan areas of *Lisboa* and *Porto*, where 24,890 and 10,716 students inhabit, respectively. *Lisboa* represents 100% of its NUTS II region and 32% of the total SSEN, whereas *Porto* holds 50% of the NUTS II SSEN and 14% of the country's total. The third most represented subregion would be *Coimbra*, with 3,941 students, thus representing 19% of the *Centro* region and 5% of the country's numbers.

On the other hand, the subregions least represented belong to the *Norte* and *Centro* regions, with the latter being represented by *Beira-Baixa* (660 SSEN), whilst *Alto Tâmega* (392) and *Terras de Trás-os-Montes* (549) are regions of the *Norte*. These three subregions together, stand for a mere 2% of the country's SSEN population. A detailed distribution of students per NUTS III regions, as well as the respective SSEN weights, can be analyzed in the **Appendix 11**.

4.2.3. Difficulties and Needs Assessment

Having quantified and geographically mapped public schools SSEN, it is important to understand their difficulties, day-to-day struggles as well as their consequent needs, so as to draw effective solutions. To do so, the 2023 Edustat study previously considered, dating to the 2014-2018 period, was leveraged. Considering students from 1st grade to high school (74,709 students), said research identified eight types of difficulties faced by SSEN, including overall learnings, school learnings, language, daily tasks, relationships, communication, autonomy, and mobility. To assess the level of difficulty, when connected to said types, students could be classified as having no difficulty, little difficulty, plenty of difficulty, and total difficulty (see **Appendix 12**).

The most predominant type of difficulty is school learnings, as 45,961 SSEN have plenty or total difficulty in the area, representing 62% of the population. The main struggles related to this are processing information, understanding concepts, and retaining knowledge. These

students require modified curriculums, tailored teaching methods as well as additional time for assessments. Said students can be associated to all recruitment groups, as these problems can stem from sensory and intellectual disabilities as well as mental illness.

The second most frequent type of difficulty is overall learnings, with 56% of SSEN having plenty or total difficulty in this matter, accounting for 41,578 SSEN. Difficulties with overall learnings can be associated with inconsistent performances, issues retaining information and limitations when coming up with study strategies, leading to the need for tutoring and individualized education plans. As in school learnings, this difficulty can be associated with all recruitment groups, for the same reasons as the previous type.

The difficulty that is observed the most is related to language problems. 37% of SSEN have plenty or total difficulty understanding meanings, forming sentences or articulating words, amounting to 27,622 students. These students need speech therapy, specialized language instructions and modified curriculums and can be associated with sensory and intellectual disabilities, being mainly connected to recruitment groups 910 and 920.

Daily tasks are ranked as the fourth most observed difficulty, and they involve problems with self-care, personal hygiene, and day-to-day activities such as dressing. The 20,239 students who struggle in this area might need occupational therapy, daily support, and adaptive tools. This difficulty is the fourth most observed and can be linked to groups 910 and 930, as most students suffer from intellectual disabilities or mental illness.

Entering a sphere of less frequent difficulties, 20% of SSEN have difficulties making interpersonal relationships, struggling with social interactions, and requiring peer mentoring, a supportive environment, and psychological guidance. The 15,099 students can be associated to groups 910 and 920 and mostly connected to mental illness and intellectual disability.

Autonomy is the subsequent difficulty, as 11% of the SEN population has plenty or total difficulty in the area, grappling with making decisions, planning and organizing and self-advocacy. These students require therapy as well as mentoring and guidance. Most frequently associated with intellectual disability and group 910, there are 8,437 SSEN that have plenty or total difficulties in the area.

Mobility is the least predominant difficulty, with a mere 4,029 students having plenty or total difficulty, representing 5% of the SEN population. These students might have physical disabilities and motor difficulties, requiring physical therapy, accessible facilities and assistive technology.

This detailed analysis and quantification sets the ground for understanding the diversity of challenges faced by SSEN, providing the basis for targeted solutions.

4.3. Family Survey Analysis

To better understand the demand landscape, a survey was conducted, gathering perceptions and opinions about SEN. The study was targeted at families who have relatives with SEN who are still studying or recently did so, to guarantee that documented experiences were recent.

For the surveys, quota sampling was used, consisting of dividing the target population into strata which, in this case, were students or without SEN, by level of education and type of disability, given that the goal was to identify different responses within these segments. Each stratum was sampled using the new-ball technique, which involves asking the people taking part to share the survey. In this way, it was possible to have a certain number of respondents in each stratum, according to their proportion in the population, thus achieving a representative sample, meaning that the results generalize the overall target population.

The survey had 571 responses, from which 394 were valid, having eliminated responses with errors or unfinished. From this value, only respondents who have a family member with SEN

currently studying or who studied in the last 5 years were considered, resulting in 270 responses being analyzed. Moreover, the sample gathered is representative of the population, since there are answers both from Males and Females, private and public institutions, and there are answers corresponding to all but one district in Portugal.

The 270 respondents sample can be characterized in four aspects: region, school system, level of education, and type of disability (**Appendix 13**). Firstly, most respondents live in the districts of *Lisboa* (31%), *Setúbal* (21%) and *Braga* (10%). Regarding the school system, 85% of students study or have studied in public schools. When it comes to level of education, considering only respondents whose relative was still studying (236 respondents), 64% of these SSEN attend basic school, whilst pre-school and secondary education are represented by 16% and 14%, respectively. Finally, 67% of the students that the respondents are referring to have intellectual disabilities, whereas mental illness and sensorial disabilities are the case for 23% and 19% of referred students, respectively.

When analyzing the survey results, several conclusions can be taken about the opinions regarding teachers, the students' learnings and sense of fulfillment, as well as the families' level of involvement.

When it comes to the teachers, not only do 83% of families believe that there is not an adequate number of them, but 47% also believe that no teacher is qualified to deal with SSEN, with 41% believing that only Special Education Teachers (SET) are qualified to do so (**Appendix 14**).

Regarding the student's learnings, when asked "*Do you feel like your relative is being properly qualified in school, preparing them for inclusion in the labor market?*", 42% of respondents answered "No", whilst 38% answered "Partially". Furthermore, when asked "*Do you feel like your relative is being properly prepared for an autonomous life?*", only 26% answered "Yes", with the remaining 74% answering "No" or "Partially". On another note, when it comes to the

type of class their relatives are included in, 59% of respondents believe that it should be a regular education class, with a SET accompanying them (**Appendix 15**).

Most importantly, when it comes to SSEN being integrated into the school environment, 52% of families believe they are not or only partially integrated. Moreover, when asked “Do you feel like the teaching methods and activities proposed by the school make your relative feel happy and accomplished?”, 114 respondents believe so, while 113 feel like it is partially true. Only 43 respondents believe that these activities do not make their relatives happy, accounting for 16% (**Appendix 16**).

However, some results are more encouraging. When it comes to being involved in their relative’s education, only 7% of respondents believe they are not given the opportunity to do so. Furthermore, when asked “*Do you believe there is transparency when it comes to your relative’s education?*”, 89% of respondents answered that they have total or partial transparency (**Appendix 17**).

All in all, the survey of 270 families with students struggling with SEN reveals mixed insights. On the one hand, concerns about teacher qualifications and education overall persist. On the other hand, there is a positive outlook when it comes to day-to-day student integration.

5. Supply

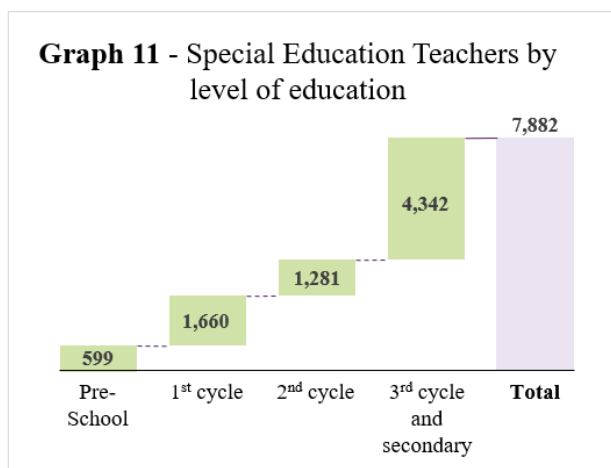
What is the standpoint of the SET supply in Portugal, and how does it correlate with teacher career attractiveness?

5.1. Diagnosis of the Special Education System

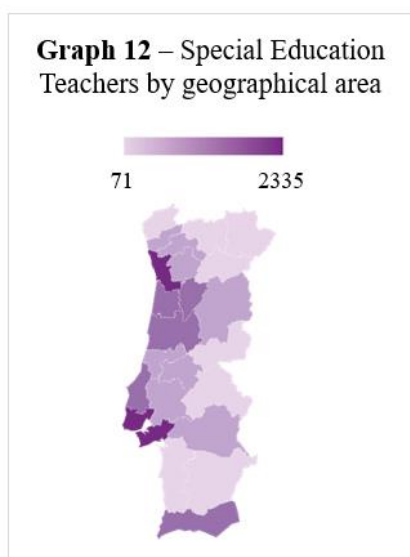
According to Decree-Law no. 54/2018, July 6, all students have the right to an inclusive education that responds to their potential, expectations and needs. In this way, the education system in Portugal seeks to comply with the said statement, with both schools and teachers being a key part of the strategy outlined to do so. As such, the aim of this section is to analyze each of these pillars that supply SSEN in detail, in order to understand their current state and how they cover existing needs.

Based on data published in 2020/20, there are a total of 147,718¹ teachers actively in service in mainland Portugal's public schools, from which 7,882 are Special Education Teachers (SET), accounting for 5,3% of all teachers (DGEEC 2022b). In addition to the teaching staff, the special education area also has specialized technicians: 61 physiotherapists, 366 speech therapists, 91 sign language interpreters, 634 psychologists and 137 occupational therapists (Valente 2023a). Together with the school staff who work directly with SSEN, all these professionals collaborate with the teachers, to meet the needs of all the 78,268 SSEN (section 4. Demand). As the aim of this Work Project is to empower the teaching staff, there is no need to go into detail about the aforementioned stakeholders who, although with a great impact on the development of SSEN in the school environment, involve in-depth analysis.

¹ It is important to notice that 147,718 represents all the regular and special education teachers that belong to public schools in mainland Portugal, thus not considering professional schools.



Legend: 55% of teachers are in the last two levels of education.



Legend: Coastalization is a key factor.

In order to understand the distribution of SET² across the various levels of education, graph 11 can be referred to. The level with the highest predominance of SET is the 3rd cycle and secondary education, with 7,882 SETs, which may indicate a higher need for support in these years of the study. (DGEEC 2022b).

When it comes to the geographical distribution of SET, one can say it is rather heterogeneous, especially between coastal and inland regions, being consistent with the existing rural flight trend in Portugal. This way, the regions where the SET incidence is higher are *Lisboa* and *Porto*, with 2,228 and 1,122 active SET, respectively (DGEEC 2022b) (Graph 12). Detailed data for the number of SET per NUTS III regions can be found in **Appendix 18**.

According to DGEEC data, there were 5,336 public schools in Portugal in the 2020/2021 school year (DGEEC n.d.), making it valid to say that throughout the country there is an average of one SET per school (Table 1), a value that by itself shows first signs of a lack in supply of SET.

² Due to lack of information, it was assumed that the number of SET in each level of education represents the same weight as the total number of public teachers.

Lisboa	Algarve	Alentejo	Centro	Norte
1.70	1.45	1.16	1.10	1.08

Nevertheless, it is important to understand that the root of the problem is not the percentage of SET compared to other areas of specialization, but rather the insufficient number of teachers in total, for any area of study. It is believed that one of the reasons that justify the current low ratio of SET per school is the troika period, during which, for just over a decade, around 27,000 teachers in total were removed from their jobs as a way of reducing state spending on education. This reduction accounted for 68% of all eliminated jobs during the 2005-2015 period and was driven by the somewhat high ratio of students to teachers at the time being. Consequently, the low amount of SET per school went hand in hand with this decrease of the total number of teachers per school, showing that it was not a result of a targeted reduction, but of a general one (Cristo 2017).

So far, the number of decreased teachers has not been replaced, so the lack of teachers in the education system is still an ongoing issue, with a tendency to deteriorate even further. The lack of teachers is increasingly evident in a school context that started classes with 1,300 unfilled timetables, resulting in almost 80,000 students without a teacher for at least one subject, and also counting on 1,268 non-specialized teachers, undermining the demands of the education system (Kotowicz 2023; Valente 2023b).

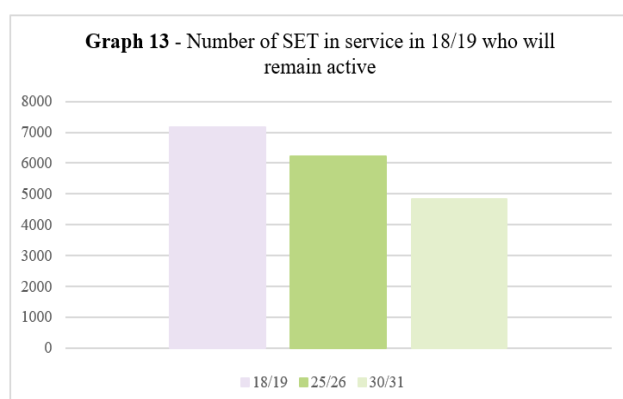
Uncompleted timetables were most prevalent in *Lisboa* and the *Algarve*, areas which have a slightly higher ratio of SET per school in comparison with the average (Table 1), at 1.7 and 1.45 respectively, meaning that at least half of the schools in these areas have two SETs. Thus, where there is the greatest need for recruitment is where there are the greatest gaps in human resources. However, possible gaps in the other geographical areas, which rely on just one teacher, can't be

ruled out, since they would become totally unable to deal with students with SSEN, which is an even worse scenario.

It is therefore part of the analysis plan to identify: 1) the causes of the continuing shortage of human resources and the prospects for its development; 2) what consequences it will have on the school environment, at a material, human and procedural level, both inside and outside the special education environment.

5.1.1. SET Future Outlook

Based on the study published by DGEEC in partnership with Nova Knowledge Center, a forecast of the number of teachers up to the year 2030/2031 was analyzed, using data made available in 2018/2019. At a public level, there is an estimated 39% decrease in the number of teachers in all recruitment groups. The root cause falls on the aging structure of the education sector, where more than 50% of teachers are over 50 years old, supporting the claim that Portugal is the country in the European Union with the oldest teaching faculty (Ferreira 2023). The biggest percentage drop is in the *Centro* region (43%), followed by *Lisboa* and *Porto* (39%), which have a slightly higher number of teachers at the end of their careers, thus being concerning given the bigger SET need in this area.



Legend: 33% of SET will retire by 2030/2031.

Delving into SET, there is an estimated 32.5% drop in the number of active teachers by 2030/2031, with only 4,835 remaining from a total of 7,164 (Graph 13). This decrease is not as steep, compared to the total, although its medium-term effects are equally catastrophic for the stability of the

Portuguese public education system, which already has currently visible flaws, such as those

already demonstrated, due to insufficient human resources. It should also be noted that the sharp fall recorded is only based on teachers retiring, excluding any other cases of departure, so the figure could be even higher.

From a purely teacher retirement-based analysis, and also taking into account a decrease in the number of students, a total of 1,593 new SET will be needed by 2030/2031 (Table 2) in order to maintain the student-to-teacher ratio recorded in 2018/2019. However, the greatest need for recruitment lies in the last 5 years, i.e., in the medium term. In fact, by 2025/2026, only 35% of the 1593 new teachers will be needed, with 2025/2026 to 2030/2031 being the time when there will be the greatest need, almost double the number of teachers needed in the first-time interval. The aging of teachers is, therefore, considered a pre-determined element, i.e., something that is already showing some signs, but which will only have real consequences afterward, namely in 7 school years' time (Nova Knowledge Center, 2021). Thus, if there are no structural changes in the medium term, the number of SETs will be even more insufficient, significantly affecting support for all SSEN.

Years	18/19	25/26	30/31
Recruitment Needs	56	556	1593
Growth Rate	-	31%	65%

5.1.2. Education Graduates as the Main Source of New Teachers

The rejuvenation of the teaching structure falls essentially on all teaching graduates, since these are the ones who meet the scientific and pedagogical requirements that qualify them to teach. In 2018/2019, 1,567 students graduated from the master's program in education. Considering this value as a yearly average, it would not be enough to meet the estimated recruitment needs. In the 2021/2022 academic year, there was a need to recruit an additional number of 3,050 regular and SETs. Even with the 1,567 new recruits, which may not be the total number of

entries due to detours to other areas or even private schools, 48% of the estimated needs were yet to be covered. As already identified, the problem is likely to worsen in the medium term. As a result, by the 2030/2031 school year there would be a 54% gap, i.e., only 15,670 of the 34,508 vacancies would be filled (**Appendix 19**).

The figures for special education only, although not promising either, show a slightly less drastic gap. In 2018/2019, there were recruitment needs of 159 teachers, from which 62% were filled, representing 99 students graduating the master's degree in this area of specialization and becoming SET. The figures tend to be more disparate as the years roll on, following the general trend.

The reason why the figures differ so much is due to the number of graduates in any teaching field and not so much to recruitment needs. The latter stems from a demographic problem, which is the aging of active teachers, thus being difficult to overcome. On the other hand, the number of entrants in education courses has, in recent years, shown lower-than-expected occupancy rates, such as 68.7% in 2021/2022 (DGEEC & DSEE n.d.). If all the places were filled at 100%, this would mean a total of 2,280 graduates instead of 1,567. However, there would still be a gap, as there would be 2,280 new teachers for 3,050 vacancies needed to be filled (Nova Knowledge Center 2021). In addition, attention should be paid to the distribution of occupancy by region. Most unoccupied vacancies are in the *Norte* and *Alentejo* regions, with a 78.2% and 74.3% occupancy rate, respectively. On the other hand, *Lisboa* is not only the area that fills most vacancies (94.1%) (DGEEC & DSEE n.d.), but also the one with the largest number of students, so it is unrealistic to think that the total number of extra people studying education would go to the areas with the least occupancy when the trend of coastalization shows exactly the opposite (DGEEC 2022b). Therefore, the institutions should be open to increasing the number of vacancies in education, as these are insufficient for the ideal number of new

teachers needed. At the same time, the lack of attractiveness in the education sector requires extra attention, as from this problem might stem some of the main reasons for the current shortage of teachers, which, consequently, impacts the occupancy rate of universities, especially in the area of special education, which is the focus of the project. Otherwise, if nothing changes, it will be increasingly difficult to meet the existing needs, leading to consequences that have been widely predicted, such as 250,000 students missing at least one subject (Diário de Notícias & Lusa 2022).

5.2. Unattractiveness of the Teaching Career

As validated earlier through some sources, the current teacher shortage does not stem from a singular problem, but from decisions and events on a scale, such as the reduction of 27,000 teachers during the Troika period (Cristo 2017), the aging of the teaching staff (Nova Knowledge Center, 2021) and the lack of attractiveness of their careers. The combination of all these factors has contributed to the current state of the education sector, which is characterized by a clear lack of human resources. However, the unattractiveness of the teaching career is worth highlighting, which is the most recent cause and whose impact is highly transformative for the sector, in a negative light. In 2020/2021, the number of SETs in the private sector represented 1.89% of the total in the public sector, i.e., 152 of 7,882 (DGEEC 2022b), although 25% of teaching graduates in 2018/2019 no longer worked in the field (Universidade de Lisboa 2021). These figures are likely to be increasingly monitored because, in a reality where a teaching career is not seen as a viable option, it is crucial to keep teachers already professionalized, to maintain the current workforce at the very least.

Even so, it is important to try to understand the causes that lead to a lack of interest in a teaching career, intending to retain and attract new talent capable of meeting the needs of the current system.

5.2.1. Training

In terms of training, there are some benefits provided by law, that are closely linked to teachers' working hours, so it makes sense to have a brief background on this topic. Currently, according to Normative Order no. 10-B/2018, of July 6, the teaching staff are required to work 35 hours a week. The teachers' weekly timetable includes a teaching component and a non-teaching component and is spread over 5 working days. Regarding the teaching component, the full timetable consists of 22 hours for special education recruitment groups and no more than 6 consecutive hours is allowed.

In the non-teaching component, there is an individual and educational establishment part. The first one is exclusively managed by the teacher, equivalent to 13 hours, to prepare lessons, evaluate the teaching-learning process and prepare research work. The latter is managed by the education establishment who enforces the minimum time, up to a limit of 150 minutes per week, to ensure that the student's needs are met. In addition to including the activities enforced in the legislation in this component, the school principal is free to include activities approved by the pedagogical council, namely training activities for school teachers in accordance with their training plan, in conjunction with the school association's training center, and those that promote effective collaborative work between teachers. (Despacho Normativo n.º 10-B/2018 2018).

The timetable referred to above corresponds to the full timetable described by law, excluding reduced and incomplete timetables. According to article 79 of the Teaching Career Statute (TCS), all teachers over the age of 50 and with 15 years of teaching service are entitled to a reduction of 2 hours per week in the teaching component. At the age of 55 and with 20 years of teaching service, they are eligible for a further 2-hour reduction and, finally, at the age of 60 and with 25 years of teaching service, they will have access to a further 4-hour reduction (Associação dos Trabalhadores da Educação n.d.). This way, the teaching component can differ

from 22 to 14 hours per week over 10 years. As a result of an aging teaching structure, 55,542 teachers are entitled to 2 hours less and 13,885 teachers³ have an 8-hour reduction (Kotowicz, 2019), which means that in total there will be 222,164 hours reduced in the teaching component, making a total of 10,098 extra full hours that are needed to cover these needs, corresponding to 7% of the total workforce, more than SETs combined. Although this is a significant reinforcement of staff, thus being a problem in terms of human resources efficiency, these hours of reduced teaching time, instead of being eliminated from the timetable, are transferred to the non-teaching time managed by the educational establishment, which can be used for training and whose limit can vary between 4h30 a week to 10h30 (Associação dos Trabalhadores da Educação n.d.).

5.2.1.1. Applicability of Continuous Training Incentives

Throughout their careers, teachers have access to three components of training: initial, continuous and specialized. The first is strictly compulsory and qualifies them for teaching. After teachers enter the teaching profession, they have access to ongoing training, which will be the focus of this section and which, in turn, can include the area of special education. This training can take the form of training courses, training workshops, study circles, all with a minimum duration of 12 hours, and short courses, with a minimum duration of three hours and a maximum of six.

All modalities require that the training focuses at least 50% on the scientific and pedagogical dimension and that at least four-fifths of the training is accredited by the *Conselho Científico-*

³ When calculating the number of teachers with reduced working hours, it was taken into account that 47% of teachers are over 50 and 20% are over 60. These figures were then multiplied by the number of hours less.

Pedagógico da Formação Contínua (CCPFC) so that it can then be validated as a requirement for career progression, something that will be delved on later in this report.

In 2019/20, registration of continuing training was carried out by 160 entities at national level, of which 89 are CFAEs (*Centros de Formação de Agrupamentos de Escola*) and 71 are other training entities such as higher education institutions, training centres of non-profit professional or scientific associations, central services of the Ministry of Education and Science and other non-profit public, private or cooperative entities accredited for this purpose (Decreto-Lei n.º22/2014 2014)). In this way, it is clear that, given the offer made available, more than half of the training provided, i.e. 74.6%, is carried out by the CFAEs (DGAE, DSGRHF, & EGAF, n.d.). However, according to some teachers, they consider the training provided by these centers to be somewhat limited and without much added value.

Once the context has been established, it is important to define the benefits of continuous training, which can greatly impact the area of special education, since it can provide tools for all teachers to work with SEN in the classroom.

Based on article 104 of the TCS, regular education teachers can take time-off from teaching to partake in training activities, in order to update or acquire new knowledge in the areas of need identified by the schools, one of which may be special education. In this context, teachers can take time-off from teaching through the schools or on their own initiative. The first option is preferably granted in the non-teaching part of the school timetable, although the teaching component can be granted if there is capacity to ensure the missing hours. If it is teacher-initiated training, then it is allowed during teaching activity break. If this time is not demonstrably sufficient, it can be carried out in non-teaching periods managed by the educational establishment, up to a limit of 10 hours per school year, except for pre-school teachers who have no limit (SPGL 2020).

Even if assuming that all training courses have a minimum duration of 12 hours, as indicated in article 7° of Decree-Law 22/2014, it is clear that the benefit of time-off for training does not allow teachers to do 100% of their training during working hours, unless the school takes the initiative, or the teacher gives pre-school classes (Decreto-Lei n.º 22/2014 2014). Even so, the training could not exceed 2 hours per week since there are only 2.5 hours of non-teaching time per week, which makes the law itself insufficient, because of both the limit of hours presented per week and of the provision of 10 hours per year with training starting at 12 hours, in the most extreme cases. Moreover, a greater non-teaching component for many of the 47% of the teaching staff that has the benefit of reduced working hours will not bring more time for training in return, in the vast majority of cases.

Moreover, throughout a conducted teacher survey covered later in this section, one can conclude that they had never been granted time-off for training, not only because of their own lack of knowledge about the benefits themselves, but above all due to the lack of applicability of the laws with benefits in force, due to a lack of will and incentive on the part of the educational establishments. In this sense, instead of using the hours they are entitled to as time-off for training, which in itself is already insufficient, they have to use all their free time to do it. This creates a major disincentive to training, not only because of the lack of sufficiently relevant benefits for training, but also because of their poor applicability.

5.2.1.2. Specialized Training Incentives

Even though ongoing training serves as a way for regular teachers to acquire tools to better deal with SEN in the classroom, it is relevant to understand the incentives available for long-term training, such as special education specialized courses. This allows a greater number of SETs in the school environment for each SEN which, as stated above, deserves attention.

All teachers in the Portuguese public education system belong to a recruitment group related to their area of specialization. In the case of special education, there are recruitment groups 910, 920, and 930, each with a different focus. The first is intended to support children and young people with severe cognitive and motor problems, personality or conduct disorders, multiple disabilities, and early childhood intervention support. The 920 group aims to support children and young people with moderate, severe, or profound deafness and with severe communication, language, or speech problems. Lastly, the 930 group provides educational support to children and young people with blindness or low vision. For any teacher to belong to one of these three recruitment groups, they must have a professional teaching qualification and complete a specialization course in the field of special education.

The qualification for teaching is obtained through the graduation from a master's degree in teaching, specialized in a field related to a specific recruitment group. An exception is made for teachers whose professionalization occurred before the enactment of Decree-Law n.º 79/2014. Under the prior legislative framework, these educators obtained qualification through in-service professionalization or the completion of bachelor's degrees in education undertaken before the Bologna Process (Portaria n.º 212/2009 2009).

In the final stage, undertaking a specialization course is a necessary step, which can be completed either through a specialized training course or a qualification one. The first is solely admissible for pre-school, elementary, or secondary school teachers who, at the time of admission, are professionalized and possess a minimum of 5 years of teaching service. The latter is designed for engaging in other educational roles beyond traditional teaching functions.

As the core of the thesis centers on empowering teachers for greater inclusion of SSEN in the school environment, the focus of the following analysis will solely concentrate on the

specialized training course. This specialized course must be accredited by the CCPFC and have a duration of no less than 250 effective hours of training (Decreto-Lei n.º 95/97 1997).

Considering that the typology of training differs from continuous training, different incentives for specialized training were created to suit teachers' interests better. These include sabbatical leave, worker-student bylaws, and unpaid leave.

A sabbatical leave may be granted, for a period of one academic year, to a teacher who is in a permanent post, with a performance evaluation equal to or higher than "Good" and at least eight years of uninterrupted service. The purpose of this leave is to take time-off from teaching, for continuous training, to attend specialized courses or to carry out applied research that is incompatible with remaining active in providing teaching service (Portaria n.º 350/2008 2008).

Considering each teacher's career stage and assuming none have taken breaks in the past eight years and have equal or more than "Good" in performance evaluation, it can be inferred that at least 119.736⁴, representing 93.6% of the permanent teacher base, are eligible to benefit from this incentive. This presents a highly valuable and impactful incentive within the educational landscape. Nonetheless, one cannot dismiss the 6.4% of teachers in the 1st and 2nd career stages (Graph 15), as they might only be in these tiers due to non-compliance with the requisites for the subsequent stage, rather than insufficient service time, which in this case is eight years, equivalent to that required for this benefit (Conselho Nacional de Educação 2021).

⁴ To obtain the number of teachers eligible for the benefit, first it was identified the number of permanent teachers, which corresponds to 86.6% of the total workforce. This figure was then multiplied by the percentage of teachers above the 2nd step (93.6%), exclusive.

According to Article 101 of Decree-Law no. 41/2012, the limits to which the worker student bylaws apply are defined. This constitutes another benefit in favour of the specialized course, since all teachers attending a higher education institution to obtain an academic degree or postgraduate qualification in teaching, are granted this status. Given that this level of education coincides precisely with the final process to enter recruitment groups 910, 920, and 930, all teachers aspiring to join the area of special education may be assigned extraordinary teaching duties at the beginning of the school year and are obliged to comply with these duties, except on days when they benefit from the dispensations or absences provided for in the legislation on student-workers. Teachers can be absent with justification on the day of the test and the day before. When organizing timetables, the competent body must, whenever possible, define working hours that enable teachers to attend course classes and travel to their respective educational establishments (Decreto-Lei n.º 41/2012 2012).

As a final advantage to specialized training, there are long-term unpaid leaves. This benefit is available to all teachers in a permanent post with at least five years of effective teaching service. The start and end dates of the leave coincide with the start and end dates of the school year. Although they can return to the same recruitment group, they are given the opportunity to accept a vacancy in another group. Given the above-mentioned measures, this creates greater financial instability for teachers as they are no longer paid. However, it not only gives them greater flexibility in terms of the date of return, but also does not limit the duties to be carried out during this break (Decreto-Lei n.º 41/2012 2012).

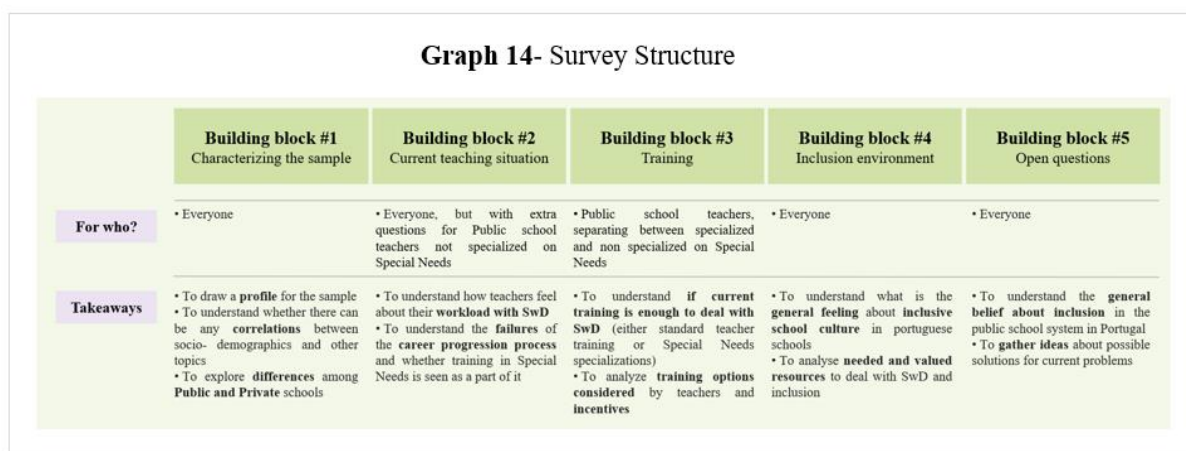
All these benefits, although designed to benefit teachers, don't provide any financial support for specialized training. All interested teachers must spend an average of €1,333 for a postgraduate or €2,208 for a master's degree, taking into account that they receive an average of €1,476 wage (Sindicato dos Professores do Norte 2023), assuming they belong to the 3rd tier, which is the

first tier in which this type of specialized training is allowed. Even with the payment plans that universities offer, such as €110 over 10 months, it is clear that the effort rate of 7.5% is a significant figure and one that ends up conditioning interest in these types of training.

On the other hand, these benefits lack applicability for contract teachers, which account for 13,4% of all teachers, meaning that 19,794 teachers have no access to neither sabbatical nor unpaid leave. In this sense, even if the measures are implemented correctly, which will be analyzed in the following section, the impact will be much smaller, as the specialized course will not be as appealing to contract teachers. Serving as proof to this argument, is the distribution of teachers by type of contract in the special education recruitment groups. In these groups, there are 1,202 contracted teachers out of 7,164, i.e., 17% of teachers don't have a permanent position, a higher number than the general average, making it clear that they see special education recruitment groups as an opportunity to take on a permanent position. Therefore, it makes sense to seize this greater willingness on the part of contract teachers to specialize in the area of special education through more benefits to the realization of the latter (DGEEC & Nova Knowledge Center 2021).

5.2.1.3. Applicability of SE Training Benefits Through Survey Results

To understand the applicability of these benefits and other content related to the area of special education that was important to know in detail, a survey was carried out for all teachers, regardless of they were SETs or not, from the public and private sectors and from pre-primary to secondary school. Given that there were different questions for different groups, 5 blocks were delineated (Graph 14):



Legend: Survey divides regular and SETs, private from public

For said survey, only the target audience of teachers was questioned, as the aim was to contrast what is decreed by law with their opinions on the current teaching situation, training, and inclusion environment of all SSEN. Within the general target, subgroups were created, public and private, regular and SETs, to adapt the questions to each teacher's reality.

To avoid an incoherent and incomplete analysis of results, all respondents who did not complete the survey in full, as well as all those whose answers contradicted each other, were deemed invalid and thus eliminated. Therefore, a total of 1,636 responses were registered, of which 1,174 were considered valid. Moreover, just like in the survey to families, the sample gathered is considered representative one, since there are answers both from Males and Females, private and public institutions, and there are answers corresponding to all districts in Portugal, thus

providing truthful answers. A complete characterization of the sample used from the population of teachers in Portugal can be found in **Appendix 20**.

On a national level, there are a total of 147,718 public school teachers and 19,610 private school teachers, 88% and 12% respectively. Of the 1,174 teachers present in the survey, only 11% are from private schools, while 85% are from public schools, thus having a similar distribution. The remaining 4% are teachers in IPSS, professional schools and public and private schools.

Within public education, SETs, as already mentioned, weigh 5,3% compared to the total number of teachers (DGEEC 2022b). According to the valid responses to the survey, SETs have a weight of 15%. The difference, although small, was relevant in a good way, since most of the points to be questioned were aimed at this group, so a representative sample was important. Geographically, the distribution of responses by NUTS is similar to the territorial distribution of teachers (DGEEC 2022b), so there was greater receptivity in coastal areas. For a more visual insight please notice **Appendix 21**.

In terms of age, more than 50% of teachers are over 50, as shown at the national level on section 5.1. *Diagnosis of the Special Education System* (Ferreira 2023). When it comes to the level of education, the distribution corresponds to the actual landscape, with a predominance in the 3rd cycle and secondary, as seen in **Appendix 22**. Lastly, and with a strict focus on permanent teachers in public education, there is a greater occupation of these teachers in tiers 4, and 6, in both national and survey results, as **Appendix 23** shows.

In this sense, one can conclude that in addition to a valid total number of responses, the survey is also representative since it follows national trends and data, making the results from each of the aforementioned segmentations more credible, and conformed to the reality of the Portuguese public system.

Having completed the characterization of the sample, it is important to understand if the benefits decreed by law for training take place, in practice. To do so, a series of questions were asked specifically to SETs who inevitably had to go through the training process. To begin with, only 4% of the teachers were not working at the time of the specialization, mostly due to unemployment. Only one teacher took sabbatical leave, and unpaid leave, although it was included in the options, was not mentioned at all by any teacher (**Appendix 24**). This leads to the conclusion that the benefits of temporary leave do not fully apply in reality, either because teachers are unaware of them or because schools lack the initiative in when it comes to promoting them.

Of the 88% of teachers who continued working during their specialization, only 12% reported having reduced working hours, as a result of their student-worker status (**Appendix 24**), showing that the ongoing incentives for training are also practically not taken advantage of by the majority of teachers.

In order to define the reason behind 137 of 159 teachers not using any training incentive, additional interviews were carried out to question whether the non-use of these benefits was due to a lack of openness to these policies, on the part of schools, or a lack of knowledge about these incentives, on the teachers' part. The first option was concluded to be the one most common to occur, although there may be scenarios of a lack of knowledge of the rules in force.

5.2.2. Career Progression

Progression in the teaching career consists of a change in pay index through progress in a tier that depends on the cumulative verification of three requirements.

The first one is a minimum period of effective teaching service in the immediately preceding tier. The teaching service time required is four years, except for service time in the 5th level, which lasts two years. Moreover, at least a "Good" grade in the last performance evaluation is

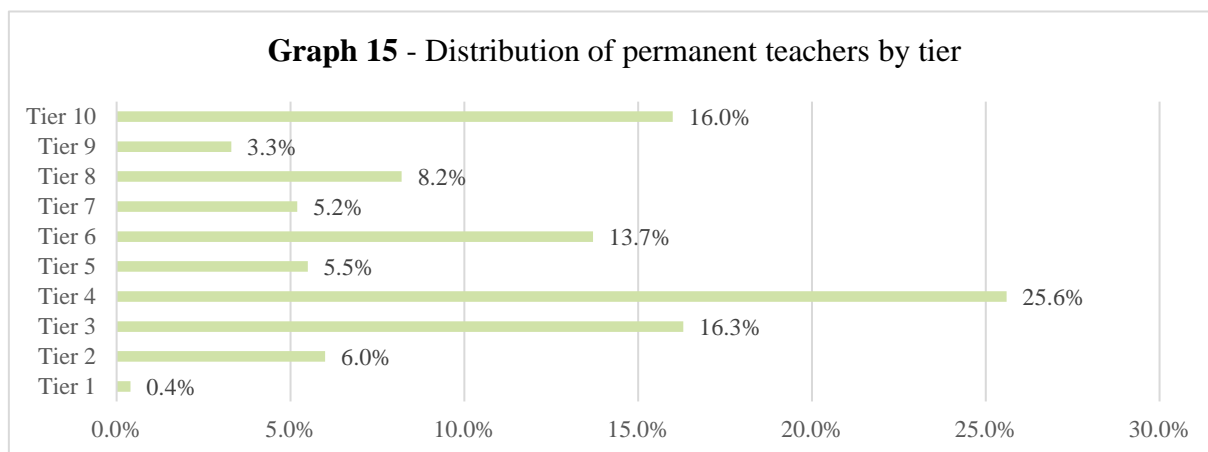
required. Finally, it is mandatory to have a successful attendance of continuous training or specialized training courses for at least half of the evaluation cycle, for a total of no less than 25 hours in the 5th level of the teaching career and 50 hours in the other levels of the teaching career.

In addition to the basic requirements, there are two additional requirements related to obtaining spots in the next tier and observing classes. The first takes place from the fourth to the fifth tier and from the sixth to the seventh, while lesson observation is requested from the second to the third tier and from the fourth to the fifth. If teachers receive an "Excellent" or "Very Good" rating, they automatically move up to the next step, without the requirement for vacancies.

In order to materialize these criteria, it is important to understand how the teachers are distributed by tier, which can range from the first to the tenth (Graph 15). Of all the tiers present, four of them (tiers 3,4,6, and 10) stand out due to the higher percentage of teachers retained in them. Before delving into the next point, which concerns the national competition for teachers - another factor that contributes to the lack of attractiveness of teaching careers - it is worth noting that, on average, a teacher in mainland Portugal spends the first 16 years teaching under successive contracts, as indicated by the National Teachers' Council in its "State of Education 2021" report. This means that half of all teachers, i.e., 48% are expected to be in the first four tiers, because it corresponds exactly to the 16 years of integration into the teaching career.

In addition to the delay in permanent recruitment, it is also necessary to obtain a vacancy in tier four, thus validating the retention of more teachers in that tier, which represents one fourth of the total, being the tier with the most teachers at the moment. Tier 6 is the third tier with the most retained teachers and stems from the same cause as the fourth and. Lastly, tier 10 stands out only due to highly aged teachers, as the average age in this tier is 60.7 years old with 38.6 full years of service. However, this figure does not mean a fully functional career progression.

For this to be the case, there would have to be a much greater predominance in the last tiers, since the average length of service of teachers is around 26.2 (**Appendix 25**), which means that if they were to change tiers every 4 years, as provided for in the law, with the exception of the fifth, they would mostly be in the seventh tier which, consequently, is the third tier with the fewest teachers in it.



Legend: The distribution of teachers by tier does not follow the trend of aging teachers.

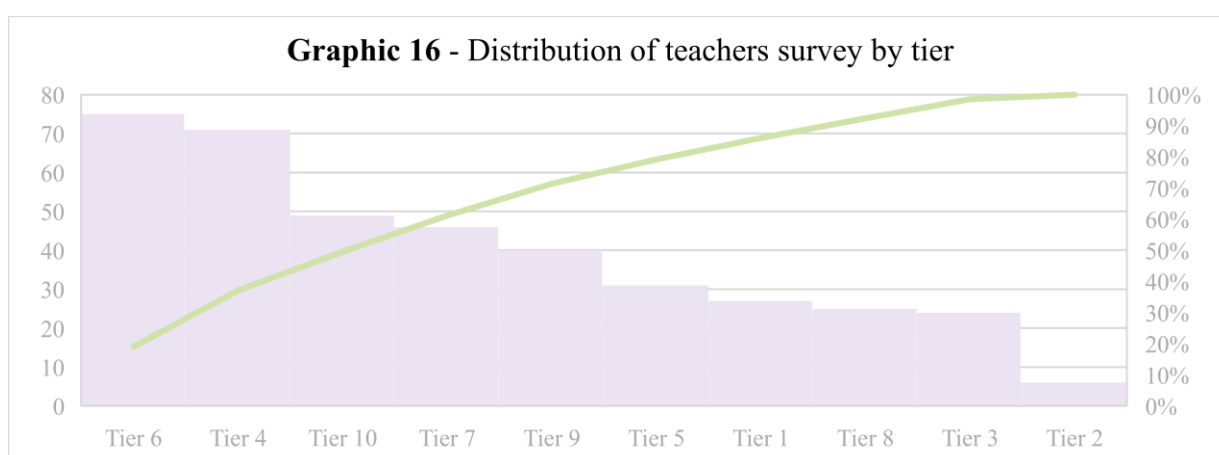
Since career progression is a support system for teaching careers that, through its requirements, encourage the completion of specialized training, through its eligibility for fulfilling the necessary hours in the training aspect, it is important to keep career progression active and above all efficient so that it creates the incentives envisaged. It is therefore essential to understand its applicability to teaching careers, which is obtained through the following survey results.

5.2.2.1. Applicability of Career Progression Through Survey Results

The data presented above shows that there is a clear delay in the transition between tiers, which indicates that the teaching career support process is not being implemented in the desired way. For this reason, extracting teachers' perceptions of the process in question is key to understand whether it is a problem or not and above all, to identify the causes that lead to failures in the system.

Career progression is seen as a process that is mostly unfair and difficult to comply with for 95% of the teachers (**Appendix 26**), validating that there are indeed gaps to be optimized. The majority of the 5% of teachers who believe that the process is fair are mostly in the top tiers, having always moved up, except during the career freeze years. Nonetheless, there is also a small percentage of 1st tier teachers who, because they haven't been through the process yet, don't have an opinion. So, it's safe to say that career progression was only efficient for 5% of the current permanent teachers interviewed.

In order to identify the causes of an unfair process, difficult to comply and dubious information, the question *"Throughout your career, have you always progressed?"* was asked. From this question, the conclusion that emerged is that 45% of teachers did not always move up a tier, once they had completed their time in the tier they were in (**Appendix 26**). Given that teachers' career progression is automatic, albeit with the fulfilment of requirements, there are bound to be flaws in the system that justify this lack of progression. To identify the causes, the tiers with the most retained teachers from the surveys were identified (**Appendix 27** and Graph 16), which are the fourth and sixth tiers, going hand-in-hand with the national trend. In each tier, the main causes for not moving up were extracted from the respondents.



Legend: Tiers 4,1 and 6 have the most retained teachers, respectively

In tiers 4 and 6, the most common causes were the lack of vacancies at the top tiers and career freezes. Although the latter stems from a financial crisis, which continued from 2011 to 2017, that left froze career progression for a long time, it was not the only cause of the current situation. The most important cause cited by teachers was the lack of vacancies, showing a great inefficiency in the career progression system, leading to its discrediting.

Concerning tier 1, although it is not a tier with substantial SET it should also be noted that one of the reasons for teachers not moving up to the next level was the delay in becoming permanent staff and the transition from the private to the public sector. As mentioned earlier, it takes teachers an average of 16 years to become permanent, largely due to the precariousness of the teaching career which makes it impossible for them to apply for permanent positions and, even when they can, the hiring system also seems to be flawed. These flaws will be discussed in the next section, but they affect contract teachers' access to a teaching progression career, since it is only available to permanent teachers. The transition from the private to the public sector, while being a positive point in terms of attracting talent, partly reflects the lack of viability of the teaching career, as teachers opt for the best conditions in the private sector in line with the hours in the public sector, until they join the ranks of the public education system.

Therefore, career progression presents serious inefficiencies in its operation, resulting in a neutrality of the benefits it tries to promote and a general demotivation of teachers. From this last factor derive the last reasons given by teachers for not entering the next tier, which are evaluation below required, non-compliance with training hours and non-delivery of Ad report. These are non-compliances, not because of a lack of knowledge of the requirements, but because of a devaluation not only of career progression but also of the other theoretical benefits involved, which don't make it past the paper stage and therefore become irrelevant to fulfilment in the eyes of many teachers.

5.2.3. National Teacher Competition

According to data from 2018/2019, the education sector in mainland Portugal had 120,369 teachers, divided into school boards, pedagogical zone boards, and hired. If the first two were to be added together, as they are permanent placements, they account for 86.6% of the total workforce, which means that there are 16,129 teachers on contract.

From a more funnelled perspective in the area of special education, one can observe a deterioration of 3.4 percentage points compared to the above hiring scenario. Out of a total of 7,164 SET, 83.2% were permanent, leaving 1,202 teachers on contract (Nova Knowledge Center 2021).

The purpose of contract teachers is to meet temporary needs. However, given the aging of teachers and the lack of attraction of new talent to meet recruitment needs, contract teachers are being used as permanent human resources, albeit without access to a teaching career. This scenario creates precariousness in the teaching profession, due to the instability of placement, both due to geographical distance and monetary reward, since they are paid at the 1st tier regardless of length of service. However, it creates greater instability and an unnecessarily complex process for the Ministry of Education, having the pressure of placing 1202 teachers, at the start of each school term. These teachers, due to the fact that they are not contracted, will always have the possibility of not accepting their given placement, promoting the shortage of teachers that it is been seen, given the precarious timetable that is suggested to them (Machado 2023).

As a result, recruitment reserve lists are used more than ever. Instead of being used to meet temporary needs, they are used from the start of the school year to fill vacancies not filled by the initial recruitment. Proof of this can be seen in the 50 vacancies placed on the first recruitment list for that same school year, all of which were annual, with 49 going to group 910,

where the greatest need lies, and a single teacher to 920, with no need for recruitment to 930. Although this represents a negligible percentage, it will increase over the course of another 29 recruitment reserve lists that take place at the end of the school year, which means that, given the SET ratios per school, there could be serious shortcomings, such as the lack of any teachers to support the SSEN (DGAE 2019). It should be noted that the ongoing annual need for teachers is largely due to teachers refusing to join a particular school and timetable, due to the lack of conditions that the offer provides for the teacher in question.

For teachers to be eligible to apply for staff positions, they need to sign three annual contracts (from September to August), with a full timetable (22 teaching hours) and no breaks. In this sense, the reason for the teachers' refusal is that they want to meet the criteria to speed up their service time (Decree-Law n.º 32-A/2023 2023). However, the refusal does not mean that they will subsequently have a full annual timetable, quite the opposite, but other values, such as family, take precedence in their decision.

This year, a new model for recruiting teachers has been created, called "dynamic attachment", which allows teachers who do not fulfil the successive 3 full annual contracts to apply for the board. This new model ends up giving a more stable position to many teachers who, due to the precariousness of the teaching profession, are unable to have three consecutive years of full-time and therefore have to change schools every year. However, it has been heavily criticized and the fact that 25% of teachers who met the conditions to join the board, that is, 2064 of 8,223 did not do so, serves as proof. The justification is that in the first year, the teacher can only be placed in the preferred *Quadro de Zona Pedagógica* (QZP) and not in the school's board, while in the second year, they would be obliged to be placed in any QZP in the country since the first year's placement is in a QZP that is being abolished (Sindicato dos Professores do Norte 2023).

There has been a lot of analysis predicting a sharp drop in the number of teachers, which is why it is essential to integrate more contract teachers into the workforce, by giving them more stable options than what is being made. In the medium term, the number of teachers will fall, as described in on section 5.1. *Diagnosis of the Special Education System*, so the use of contract teachers will be greater, as they will have to attract new entrants to the education system without the full three-year timetable. In this sense, it is crucial to ensure that current permanent contract teachers are included in the teaching career, in order to minimize the pressure of the national teacher competition and its possible failures, given the significant increase in demand which, consequently, is still uncertain as to its capacity to meet all needs.

Another point to mention relates to the list of non-placement recruitment reserves. As will be mentioned section 6. *Matching Demand and Supply*, the ratio between students and teachers in Portuguese public schools is not ideal, especially in special education. However, there are many qualified teachers on the list of those not placed in the recruitment reserves, which indicates an inefficiency in updating the number of teachers needed in each school. In 2018/2019 there were a total of 3,377 SETs awaiting placement (DGAE 2019). Even if all contracted teachers rejected their placement, which is not the case, there would still be almost three times the number of contracted teachers needed. Compared to 2023/2024, the recruitment reserve list has dropped by 39.7% compared to the figures presented in 2018/2019, which demonstrates the deterioration in the number of available teachers. Even so, there are still 2,035 teachers on the waiting list, enough to renew all the necessary contract teachers more than once (DGAE 2023). It is therefore clear that, even if the Ministry of Education wants to guarantee room for manoeuvre for possible annual and temporary replacements, it must increase the number of vacancies, not only with a view to improving the ratio between teachers and students with SEN, but above all to retaining the future active teachers who will be so needed in the medium term.

Retaining teachers through the transition from contract to permanent and the consequent increase in vacancies will not only ensure less negative variation in the number of teachers in the medium term, but will also help to increase incentives to support careers, whether in terms of training or even career progression, leading to greater incentive to undertake specialized training, which is the primary goal.

At the beginning of the supply section, the research objectives were defined. The first was to define the causes of the continuing shortage of human resources and the prospects for its development. As a sum up of the findings, it can be said that the number of teachers, both regular and special education, will fall sharply, especially in the medium term and with a greater impact on the coast due to the aging of the teaching profession. This decline is not currently supported by the number of graduates in the field of education, creating a considerable gap concerning recruitment needs. This lack of vacancies in education courses is, in turn, due to the unattractiveness of the teaching career, which is caused by the lack of applicability of training requirements and inefficiencies in career progression and in the national teacher competition, which contributes to entry levels that are increasingly lower than necessary.

The next point will deal with the consequences that this will all have on the school environment, at a material, human and procedural level, both inside and outside the special education environment.

5.3. Adverse Effects of the Identified Causes

Based on Decree-Law n.º 54/2018, July 6, the government showed, through changes in the educational system, that having an inclusive education is something that schools should aim for. However, it failed to take into consideration if schools had the necessary conditions to make it work successfully.

To understand the public teacher's perception on the effectiveness of the system, they were asked, through the previous survey, the following question: *“From 0 (“insufficient”) to 5 (“excellent”) how do you classify the response of the current system to the needs of SSEN?”*.

The average of responses was 2.06. Additionally, they were asked if they felt SSEN left their teaching cycle properly taught. Only 19% answered “Yes” (**Appendix 29**), thus, together with the earlier question, validating the premise that there are serious flaws in the education system.

When prompted to explain why such a poor evaluation was given, the vast majority responded that the schools did not have the conditions to implement the system, mostly due to a lack of resources and qualifications on how to deal with SSEN.

Lack of resources was the problem mentioned the most, thus resulting in the non-compliance of the measures mentioned in the Decree-Law n. ° 54/2018, of July 6th. One year after it was released, 30% of schools did not have the mandatory multidisciplinary team (Diário de Notícias 2019). Additionally, some schools are not complying with the reduction in class size (SIC Notícias 2023), which is a mandatory measure stating that classes that have at least two SSEN with this specificity stated in their RTP, cannot exceed 20 students (INCLUSO 2019). Creating an even more difficult environment for the teacher to give proper attention to all.

However, the main problem within the lack of resources focuses on the absence of sufficient human resources. At the root of the problem is the 64% of SET that state they are responsible for an excessive number of SEN students (**Appendix 28**), thus find it difficult to comply 100% with their tasks, that is, adequate support to all SSEN and cooperation with teacher, by providing them strategies on how to deal with specific student. The latter is validated by 61% of regular teachers who answered “No” when faced with the question of whether the system created a relevant space where all the relevant agents in the student's academic life could interact effectively. This brings a consequent problem, which is an excessive number of SSEN

felt by 44% of regular teacher which have great responsibility but inadequate support, due to lack of time and above all qualification (**Appendix 29**).

Regarding lack of time, in the academic year of 2020/2021, there were 120,842 regular teachers working in public schools in Portugal (DGEC 2022b). Geographically, teachers are more concentrated in *Área Metropolitana de Lisboa* and *Porto*, with 27% and 16% of the workforce, respectively (**Appendix 30**). The rest of the teaching population is evenly distributed across Portugal overall (DGEEC 2022b). Since there is an increasingly aging teaching class, as already mentioned in section 5.1. *Diagnosis of the Special Education System*, the pressure under regular teacher, especially in *Lisboa* and *Porto*, will drastically increase, making the problem about their inadequate support even bigger which, will then have serious impacts on the sustainability of the inclusive education system.

However, it is important to notice the lack of qualification, as this being considered the second most mentioned problem of regular teachers when dealing with SSEN. From 872 regular teachers at public schools, 87% of them stated that their base training did not provide them with the necessary skills to teach SSEN because “*a few years ago this topic was not taught in schools*” and “*currently there are not enough courses on the matter and the ones that exist are too broad and theoretical*”, thus not preparing regular teachers for the wide range of different cases and particularities of each SSEN (**Appendix 31**).

Since the base course was considered not enough to capacitate regular teachers on how to deal with SSEN, it was important to understand if teachers would seek, during their career, special education courses to gain competences, given the impact it has on their jobs and 41% said “No”. Furthermore, for the 59% that did actually do an extra course on SEN, when asked if they felt like the course gave them the skills they were looking for, 46% answered “No”, providing the same reasons as the basic course (**Appendix 31**).

As stated above, teachers do not feel their base formation gives them the skills to teach students with SEN, but despite this, almost half of them do not do the training to learn while the other half that does the training, does not feel that it was what they were looking for, making only 6% of 872 feeling that they have enough qualification to deal with SSEN, which shows a massive margin for improvement (**Appendix 31**).

Apart from the reasons already raised, there are others such as lack of incentives to training, lack of time, interest in the field and closeness to retirement which discourage teachers interviewed from undertaking training in the area of special education in the future (**Appendix 31**).

6. Matching Demand and Supply

What is the current demand and supply mismatch in Portugal, and how can it be reduced while considering international disparities?

This section will be focused on analyzing whether Portugal or which of the country's regions are lacking teachers or qualified ones. In this sense, the most critical problems in this area needing an urgent solution will be highlighted and analyzed, with recommendations to act on them being given in the following sections.

6.1. Regular Teachers and SSEN

One of the highlighted problems mentioned so far refers to the lack of teachers. To measure whether the number of teachers is enough to meet the demand, some student-teacher ratios were conducted, quantifying the number of students per teacher in Portugal. It is important to note that these ratios were calculated based on data from the school year of 2020/2021, and these will be assumed to be kept constant until the present year of 2023/2024. The first one under the analysis scope was the total number of students, including SSEN, per regular teacher. This ratio allows for a general overview of the global public education system from pre-school to secondary school in Portugal, represented by a 10-1 students-to-teacher ratio. However, since the scope of this report is to find a model that will allow SSEN to have a better and more inclusive education, the overall objective will not be focused on improving this ratio.

Furthermore, there was one crucial problem identified in both conducted surveys, that highlighted the lack of special education qualification of the regular teachers. In the survey conducted on teachers, 87% of the regular ones, felt like their base training didn't provide them with the necessary skills to work with SSEN (section 5.3. *Adverse Effects of the Identified Causes*). Also, in the survey sent to families with SSEN relatives, as mentioned in section 4.3. *Family Survey Analysis* 47% of them answered that they feel like, overall, the teachers are

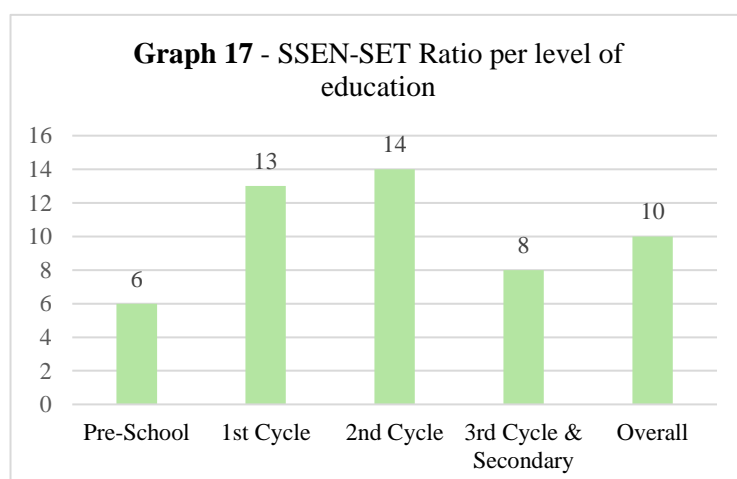
unqualified to deal with SSEN, with 41% believing that just SET are. This confirms that not only do the families feel like there is a lack of teachers' qualifications in this area, but regular teachers also recognize that they don't have enough skills to include these students in their classrooms. Consequently, this means that there is an urgent need to find a solution to qualify these teachers since these teachers are not finding formations by self-initiative.

6.2. Special Education Teachers and SSEN

6.2.1. Current Indicators

Focusing on the analyzed supply of SET, it is important to look at the student-teacher ratio between SSEN and SET, to figure out if there is a lack of teachers in this area. Given the total number of special education teachers of 7,882 (section 5.1. *Diagnosis of the Special Education System*), and the total number of students with SEN, 78,268 (section 4.2. *Quantifying Demand in the Portuguese Public School System*) in Portugal's public education system, the student-teacher ratio was ten students to one teacher.

Furthermore, by analyzing this ratio per level of education (Graph 17), one can conclude that the 1st and 2nd cycles of basic education are the ones that have a more drastic mismatch



Legend: NUTS II in the coastline have a higher mismatch between supply and demand.

between supply and demand, with ratios of 13-1 and 14-1 SSEN to SET ratios, respectively (Appendix 32).

Furthermore, the other levels of education seem to have better SSEN-SET ratios than the total overall Portugal ratio, with pre-

school holding a ratio of 6-1, and the 3rd cycle and secondary school group with a ratio equalling 8-1.

To ponder whether this is an ideal ratio, comparability is key, hence benchmarks were sought out. The first one was to find how much this ratio was in the private sector, with the hypothesis that this system, since it may have higher financial resources to invest in special education could have a better ratio that the public sector should try to reach.

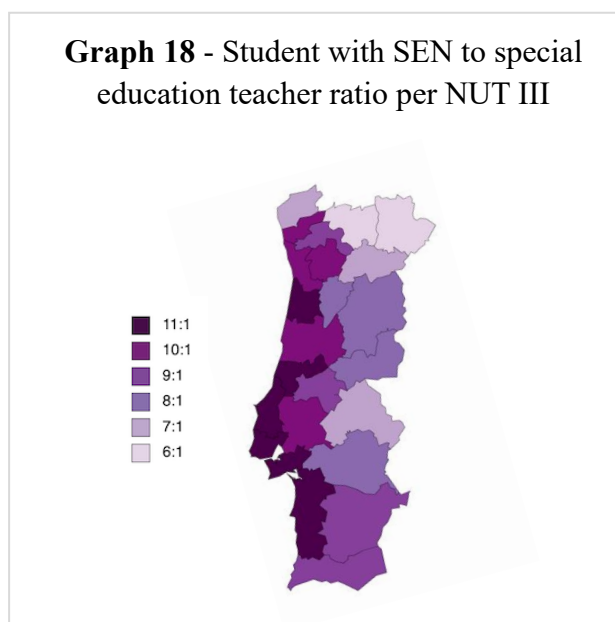
Knowing that the total number of SSEN in 2020/2021 in private schools was 10,861 (section 4.2. *Quantifying Demand in the Portuguese Public School System*), and the total number of SET in this sector was 152 (DGEEC 2022b), the SSEN-SET ratio in the private educational sector was that of 71-1. This ratio is particularly high, given the lack of SET in private schools which represent only 1.9% of the total SET population. As a result, the hypothesis raised should not be followed, given that the private education sector seems to be much worse in terms of student-teacher ratio than the public sector.

Given a failed first attempt of a benchmark, other approaches had to be considered, in order to understand whether the public sector ratio could be improved. The idea was to try to find this ratio in other countries, especially in the 13 OECD countries that were identified in section 3.1. *International Benchmark* as comparable ones. In the research done, two student-teacher ratios between SSEN and SET were found for Germany and Wales in the public sector. The German ratio refers to 2021, with a 5 SSEN to SET ratio, and was based on public special needs schools, which was assumed to be a good benchmark to follow (BMBF n.d.). Similarly, the Wales ratio was also found for special education needs schools, with a value of 7 SSEN to SET ratio for the year 2022 (GOV.WALES n.d.).

Both previously mentioned ratios are better than the Portugal one, thus these will be considered as target ratios to be reached in the future and a sign that Portugal could improve its current

ratio. Nevertheless, this is a considerable challenge, given that this would mean that per SET the number of SSEN should be cut by 30% if the example of Wales was followed, and to 50% if the Germany ratio was to be in place.

Having identified two relevant ratio examples for Portugal to follow, it is crucial to analyze its ratio per region to check if some places need a more urgent solution. In this sense, with the information given in section 4.2. *Quantifying Demand in the Portuguese Public School System* and section 5.1. *Diagnosis of the Special Education System*, regarding the number of SET and students with SEN in public schools per NUT III, it was possible to get to this ratio per geographical area (Graph 18).



Legend: NUTS II in the coastline have a higher mismatch between supply and demand.

By looking at the presented heat map, one can conclude that the geographical areas that have the worst ratio are the ones placed on the coastline (Graph 18). These are regions where the number of SET is much worse compared with the number of SSEN. The most critical NUTS III regions identified had ratios ranging from 10-1 to 11-1 SSEN to SET (**Appendix 33**).

These NUTS III regions are: *Região de Aveiro, Área Metropolitana de Lisboa, Região de Leiria, Oeste, Alentejo Litoral, Área Metropolitana do Porto, Cávado, Tâmega e Sousa, Região de Coimbra Region, Lezíria do Tejo*. All these regions combined account for 74% of the total number of SSEN and 69% of the total amount of SET, explaining the total country's ratio of 10-1. Additionally, conclusions could be drawn regarding NUTS II, with the *Área Metropolitana de Lisboa* and *Centro* having the

highest SSEN-SET. When comparing these ratios against benchmarks set by Germany and Wales, all geographical areas demonstrated worse ratios when compared to that of Germany. As for Whales, only *Alto Tâmega* and *Terras de Trás-os-Montes* outperformed the country's ratio, with a SSEN-SET ratio of 6.

6.2.2. Forecasting and Scenario Setting

Considering these results, it was important to analyze their implications in terms of the SET gap between Portugal, Wales, and Germany. These gaps will provide insights into the number of additional SET Portugal would need to hire to achieve the desired ratio. To achieve this, it was essential to determine the current scenario for the year 2023/2024 and project its evolution in the future years.

Starting with the expected evolution for students with SEN, as discussed in section 4.2. *Quantifying Demand in the Portuguese Public School System*, the total number of students is expected to decrease from 2021/2022 to 2030/2031, according to the Nova Knowledge Center's 2021 report. The forecast made from 2020/2021 to the current year, 2023/2024, assumes that the projected total number of SSEN is 74,590, representing a 4.7% decrease from the 2020/2021 figures (**Appendix 34**).

Secondly, looking at the expected evolution of SET, it is known that in 2020/2021 the total number of SET was 7,882. For the sake of the analysis, these ratios were assumed as constant until the present year. This means that in the year 2023/2024 the total number of SET should be equal to 7,512, with the SSEN-to-SET ratio of 10-1. Also, in section 5.1. *Diagnosis of the Special Education System*, a forecast was presented for the year 2030/2031, with a projected number of SET of 4,835. Nevertheless, this number only includes predictions based on the number of retirements without the number of teachers that get in from 2020/2021 to 2030/2031. To make a more precise projection, 73 SET were assumed to enter the public education sector

per year. This number was computed by multiplying the 99 students graduating from the master's degree in the area of specialization (section 5.1. *Diagnosis of the Special Education System*) by 75%, which is the percentage of these students that actually follow their career as SET (section 5.2. *Unattractiveness of the Teaching Career*), and lastly, approximately 98% of these SET teachers go to the public sector.

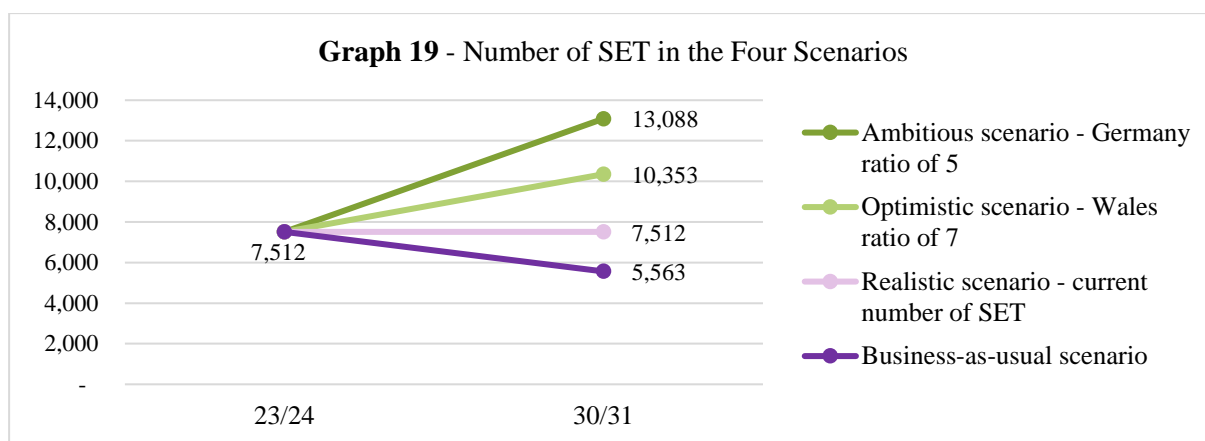
When these values are considered for the forecast, the total number of SETs in 2030/2031 is estimated to be equal to 5,564 (**Appendix 34**) which will be considered as the business-as-usual scenario. This means that if Portugal doesn't implement any extra measures until 2030/2031 the total number of SET will decrease by approximately 26%, which implies that the number of retirements is not compensated by the number of entries. In fact, with this forecast, the average number of retirements is 351 against 73 entries per year. Taking into account this prediction and recalling the two benchmark ratios of Germany and Wales, it is possible to establish some goals regarding the extra number of SETs that Portugal should attract. If the target would be to achieve the Wales ratio of seven SEN to one SET, this would mean that in 2030/2031 the number of SET would have to be 10,353. This means that through the next seven years, Portugal would have to hire 4,790 extra SET. This represents an increase of 38% in the number of SET, compared with the current number of teachers. From this point onwards, this will be called the Optimistic Scenario

An even more enlightening scenario would be for Portugal to achieve the Germany ratio. This would indicate a total number of SETs in 2030/2031 of 13,167, implying an increase of 74%, and hiring 7,525 extra SET. This scenario is now referred to as the Ambitious Scenario.

Given that achieving the ratios of these two countries may be very challenging, an extra scenario was created. In this scenario, the current number of SET would be considered as the figure for the year 2030/31. This would improve the student-teacher ratio given that the number of

students is decreasing. Consequently, the scenario would require hiring SETs equivalent to the cumulative value of 1,948, representing the retirements not being replaced by new entries. As it is the most feasible, this will be named the Realistic Scenario.

Concluding, there are two major urgencies: the insufficient skills of regular teachers in handling SSEN and the gap between the business-as-usual scenario and the other three goal scenarios (Graph 19). The proposed solutions to address these issues will be further explored in the following sections where the selection of a scenario will be based on a cost-benefit analysis of each, coupled with a solution for enhancing the qualification of regular teachers.



Legend: Gap in the number of SET between the business-as-usual scenario and the other three scenarios.

7. Solution 1: Increasing Supply of Special Education Teachers

How to ensure enough Special Education Teachers to allow for a well-functioning inclusive system?

As seen during the analysis so far, the lack of resources, especially the lack of SET, results in inadequate support and a poor teaching environment for students with SEN. As presented in section 5.3. *Adverse Effects of the Identified Causes*, SET are responsible for too many students and do not have time to properly support all of them, with 83% of families that have relatives with SSEN believing that there are not enough SET (section 4.3 *Family Survey Analysis*). This reality poses a major setback to the inclusive education system in Portugal, making it the first issue to be addressed in the proposed solutions.

To tackle this issue, a scholarship is proposed, aimed at increasing the number of SET in public schools, prioritizing the areas where the SSEN to SET ratio is more critical. Considering the projected SSEN-SET ratio for 2030/2031 of 9.2, any NUTS III region with a ratio above this value is identified as a critical region, which may be seen on **Appendix 35**.

7.1. Limited SET Vacancies

In order to present a coherent solution based on increasing the amount of SET in Portugal, it first must be ensured that there are job vacancies that can be filled by these SET.

In fact, this is an active issue in Portugal. Values from November 2023 indicate 310 SET that did not have a job vacancy to join a public school in the present year (DGAE 2023). As such, for the feasibility of the proposed solution, it was assumed that every SET that will graduate from the specialization program mentioned in this solution will have an open job vacancy.

Regarding the aforementioned value of SET who were not placed in 2023, two assumptions were made. Firstly, it is assumed that the number of waitlisted teachers will remain the same in

2024/2025, the year when projections start to be made. Secondly, teachers are assumed to be equally spread across Portugal, since due to data protection reasons there is no information regarding their geographical location.

Lastly, an assumption sustaining this solution is that every public school in Portugal has a Special Needs team, ready to receive SSEN. Even though not all schools may have the capabilities of receiving SSEN with serious disabilities (>80% degree of disability) (section 4.1. *Segmentation*), it is crucial that at least one per school cluster is available to do so.

7.2. Designing a Solution

The solution revolves around providing an incentive for teachers to graduate in special education. Said incentive would consist of a scholarship, in the shape of tuition reimbursement for the people who take a postgraduate (PG) or master's degree in special education and start working as a SET afterward.

To assess the needs of each NUTS III area, the number of SET required to achieve the mentioned SSEN to SET ratio of 9.2 was calculated, resulting in a weight of 90% of recruitment needs in critical areas and 10% in the remaining. To guarantee that critical regions would get supplied, the incentives would be more significant if teachers chose to work there, getting 100% tuition reimbursement, compared to 50% for those working in other areas.

To ensure graduates would work as SET after finishing the course, the reimbursement would be made in phases, with a given percentage paid per year until full or partial reimbursement. The yearly reimbursement would be 25% of the tuition fees until the aforementioned limit is reached and made at the end of every working year.

Candidates must apply for the incentive, as there would be limited spots per area. This ensures the required distribution of SET per region is achieved. Because the courses are shorter, priority

would be given to PGs, and master's students would only be admitted if PG degrees either do not have enough applicants or no more vacancies.

7.3. Implementation and Impact Analysis

In order to assess the potential impact of this solution, different scenarios are considered, as mentioned in section 6. *Matching Demand and Supply*. The scenarios at hand would be the Realistic, Optimistic, and Ambitious ones. The Realistic scenario consists of achieving a SSEN-to-SET ratio of 9.2. Aiming at reaching the ratios of Wales (7:1) and Germany (5:1), the Optimistic and Ambitious scenarios would require a higher number of available scholarships and consequent higher investment. To estimate each scenario's number of extra SET per year, the cumulative number of SET required by 2030/2031 (see **Appendix 36**), to achieve the given ratios, was divided by the seven years that split 2024/2025 from that date.

To calculate the cost for each scenario, a scholarship worth €1,229 was considered, when dealing with 100% tuition reimbursements. To come up with this value, a weighted average was taken into account, considering the average tuition of public and private entities (see **Appendix 37**) and the student distribution across these two (see **Appendix 38**). Yearly costs were estimated, considering the estimated number of awarded scholarships, bearing in mind whether they were working on critical vs non-critical areas since the latter only receives a total of 50% reimbursement.

To estimate the costs associated with hiring a new teacher, the salary expenses associated with public teachers were considered (Sindicato dos Professores do Norte 2023) together with the career progression scheme (Decreto-Lei n.º 41/2012) (see **Appendix 39**).

Costs are predicted until 2033/2034, due to the last payment of the scholarships happening that year. Despite the solution of increasing spots finishing in 2030/2031, the extra teachers will remain employed, therefore those costs will also be accounted for.

All in all, the present section aims to analyze the implementation and impact of each scenario, assuming that all scholarship spots are filled. In all scenarios, the 310 waitlisted teachers are allocated before scholarships are provided.

7.3.1. Realistic

For the realistic scenario to be achieved, a yearly increase of 278 SET is required. Given that at the beginning of the projections, 2024/2025, the 310 teachers that are on the waitlist and may be placed, no scholarship is provided. 32 teachers would still remain waitlisted. For the following academic year, the 32 teachers may be placed into the open job vacancies, whereas the remaining 247 would be provided with scholarships. Having allocated all waitlisted teachers, 278 scholarships would need to be provided every year, up to 2030/2031 (see **Appendix 40**).

Applying this incentive would result in an average yearly cost of €211k. By 2033/2034, the total invested in scholarships would have amounted to €1.9M and total extra wages to €419M, considering career progressions (see **Appendix 41**), ending 2030/2031 with 7,512 SET working (**Appendix 20**).

7.3.2. Optimistic

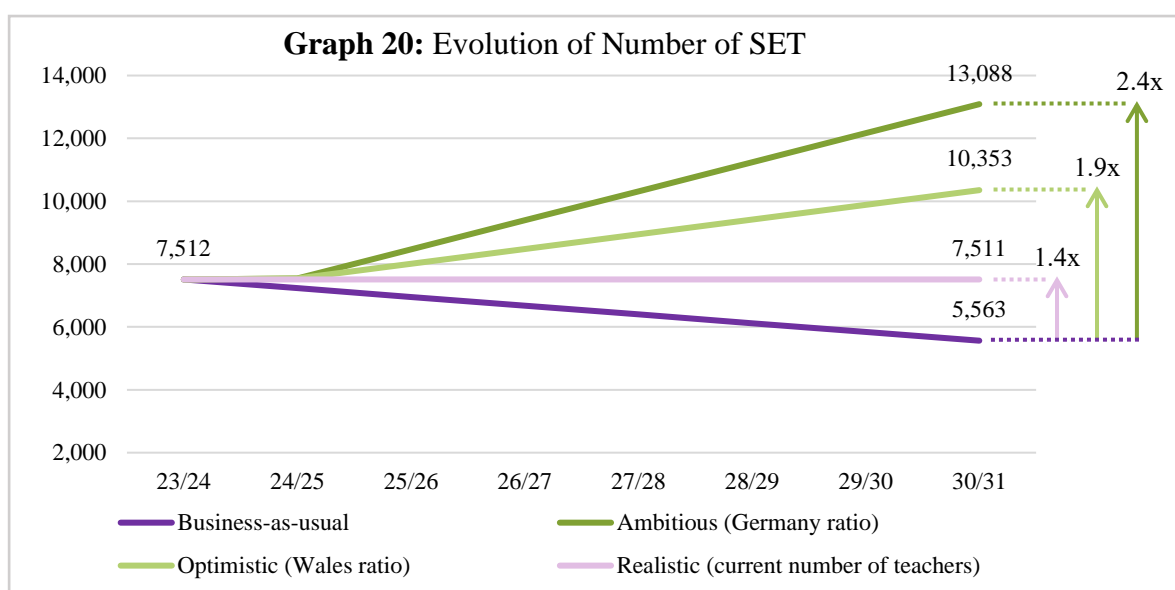
To achieve the optimistic scenario, the yearly increase in SET averages 684 teachers. Unlike in the previous scenario, the existent waitlist is now not enough to cover the needs of recruitment of SET for 2024/2025. However, that year only the waitlisted teachers may be considered to fill the SET requirements, taking into account that the scholarships allocated in that year would only lead to working teachers one year after, accounting for the duration of the training program. Hence, the proposed increase must suffer an adjustment, to account for the 374 SET left out. These would be equally spread over the remaining six years, resulting in 747 scholarships awarded per year, so that the total amount of SET needed is achieved by 2030/2031 (see **Appendix 42**).

In this scenario, scholarships would cost on average €580k every year, amounting to €5.2M after 9 years. Together with cumulative wage costs of €986M, this scenario would require a €991M investment by 2033/2034, as seen in **Appendix 43**, and would lead to finishing 2030/2031 with 10,353 SET (Graph 20).

7.3.3. Ambitious

Finally, for the ambitious scenario, the aim would be to increase the number of SET by 1,075 yearly hires. As in the optimistic scenario, there are not enough available teachers on the waitlist to cover the aimed requirements, meaning that the yearly increase would be adjusted as well. Since in 2024/2025, only 310 teachers are waitlisted, 765 extra teachers are required. Hence, these would once more be equally split over the remaining six years of the solution. This results in a need for 1,203 extra students enrolled in Special Education courses every year (**Appendix 44**), leading to a total of 10,353 SET in 2030/2031 (Graph 20).

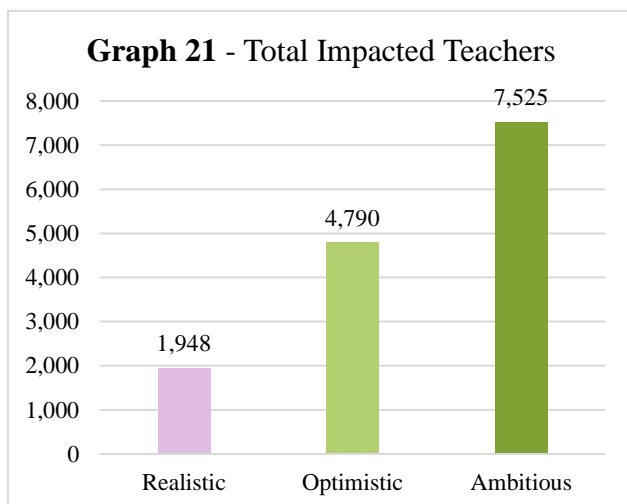
As seen in **Appendix 45**, the ambitious scenario predicts an average of €153M being spent every year until 2033/2034, with most of it being attributed to wages, which represent a €1,536M cumulative cost by the end of the time period being analyzed. Resulting in 13,088 SET working in 2030/2031 (Graph 20).



Legend: clear differences in the outcomes of different scenarios, with the "Ambitious" being more than twice the "Business-as-usual"

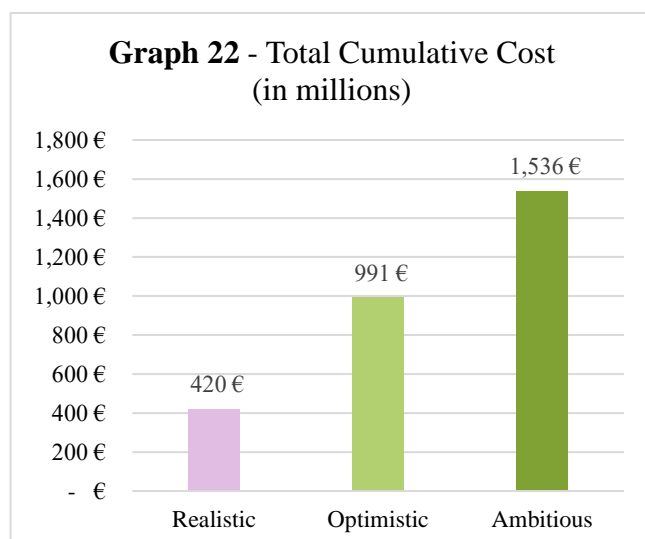
7.4. Scenario Analysis

When it comes to comparing the different identified scenarios, impact and effort should be considered, with effort being directly influenced by cost (see **Appendix 46**).



Legend: The ambitious scenario has the highest level of impact.

When it comes to impact, the Realistic scenario presents itself as a medium impact scenario, being the one that graduates the least amount of teachers, contributing towards influencing a total of 1,948 teachers by 2030/2031, mostly impacting the crucial areas. The other two scenarios have a much higher impact, with the Optimistic one having more than double the amount of increased teachers of the Realistic one and the Ambitious doubling the amount of SET in Portugal within 7 years, reducing the student-SET ratio from 10 to 5. These two scenarios result in 4,790 and 7,525 impacted teachers, respectively.



Legend: Scenario's costs almost double from one to another.

Regarding effort, the Realistic scenario is ranked at medium-high level, averaging yearly investments of €42M and total cumulative costs of €420M, when it comes to the time period in hand. The Optimistic scenario represents a cumulative investment of more than double the previous one, resulting in €991M and a yearly average of €99M. It is important to note that the high value of proposed

students per year would imply universities opening more classes. However, the excess number is relatively low, and as some universities already adapt the number of classes to the number of students, one believes that it would not be an impediment. The Ambitious scenario would require universities to double the current vacancies for PGs for 6 years, which might be a longshot. Furthermore, this scenario consists of a cumulative investment of €1,536M, representing €154M, when spread out across the years.

7.5. Complementary Measures

As stated above, this solution aims to increase the number of SET, to achieve the different ratios per scenario. However, the scholarship by itself might not be sufficient to incentivize teachers to want to pursue a career as SET. Therefore, initiatives to attract them and later retain them must also be put in place.

Starting with the university action agent, it's essential that they share their open days with secondary schools and also that they attend the university fairs promoted by each school. Although the need is for entry-level teachers who have been teaching for more than five years in public schools, it is important to ensure that there are future talents to replace the regular teaching vacancies that will no longer be filled by teachers specializing in special education.

However, these teachers also need an incentive, so the government should introduce a measure to send out all the special education courses that open and their application dates, in order to promote teachers' interest.

In addition to more information being made available, it should also be important to optimize career support processes. Starting with training, a survey of training needs will be carried out, with the aim being to diversify the free training on offer at CFAEs by introducing the five most requested courses. This way, by having the training they are looking for, they will minimize the need to go to private institutions where they would otherwise have to pay. At the same time, it's

important to extend the use of the entire non-teaching component (2.5 hours a week) for exemption from training to all cases and not just those who were the initiative of the school or who are pre-school teachers, to ensure that teachers' extra time is rarely used. Like this one, all the other benefits presented have application deadlines, so the next step is for the schools themselves to communicate their deadlines with an online session with detailed information about each benefit.

As there are still many teachers over the age of 50 who will be leaving the education sector in the medium term, it doesn't make sense to considerably open up career progression vacancies, which translates into a significant increase in the budget. Instead, the solution is to increase quotas at the levels that require a vacancy, with the selection process based on the qualifications of the teachers, which will consequently favor younger teachers as they have higher education. As a final point on career progression, the use of an external evaluator in the performance appraisal once again appears, so that this process is as fair as possible and not sustained by friendship ties, as many teachers indicated in the survey.

Finally, it is important to move all extra SET to school or pedagogical zone staff in the areas most in need, as these are permanent needs and provide less dependence on the annual competitions for contract teachers. However, for all those who remain on contract to cover temporary needs that may arise throughout the year, it would be beneficial to give them access to all the benefits associated with taking a specialized course (sabbatical and unpaid leave), in order to increase the number of specialized special education contracts. There should also be annual management of vacancies, so that there are no teachers in the recruitment pools who could be making a positive contribution to inclusion in state schools, thus decreasing the ratio of SSEN to SET.

8. Solution 2: Qualifying Regular Education Teachers

How to ensure the qualification of regular teachers to deal with inclusion?

In section 6. *Matching Demand and Supply*, a critical issue was identified through both surveys sent to families with SSEN and regular teachers stating there is a lack in the qualifications of regular teachers to effectively involve students with SEN. In response to the survey question, “*How could the inclusion of SSEN be improved?*” one respondent mentioned that “*We should qualify and guide regular education teachers*”, as many others did in other words. As mentioned before, the survey analysis concluded that only 6% of current faculty believe that they have the necessary skills to deal with students with SEN, as not only is there not enough consideration given to the matter, but when there is it is very theoretical, not covering all types of disabilities or with a practical component that is lacking or inexistent.

Consequently, this section aims to combat these perceptions by proposing a solution that will ensure that regular teachers are empowered with concepts, tools, and a practical knowledge on how to include these students in their classrooms in a better informed way. This solution will entail two courses of action, one focuses on the qualification of upcoming teachers, so as to secure long-term impact, while the other aims to ensure that current regular teachers have the necessary skills and knowledge in this area.

It is essential to note that the previously mentioned Solution 1 does not apply to regular teachers, as it is designed for those interested in pursuing a special education career, involving 250 hours of training, which may not be feasible for regular teachers. Moreover, the goal of this solution is not to convert every teacher into a SET, but rather to ensure that regular teachers possess the necessary base qualifications to facilitate inclusion with the support of an appropriate number of SETs in their school.

8.1. Qualifying Upcoming Faculty

The current average age of teacher's in Portugal is standing at 50 years old, making it the oldest faculty in the European Union. In 2020, for every teacher under 30 years old, there were 28 teachers aged over 50 in Portugal, where the European Union average stands at just 5 teachers over 50 years old, for every teacher under the age of 30. Furthermore, around 40% of 2018/2019's public school teachers are expected to retire by 2030/2031 (CNN Portugal 2023).

In this sense, the upcoming faculty will hold a key role in setting a bright future for inclusive education. So, the focus of this first approach is to propose a solution that sets the ground base for success, pursuing a lasting and long-term impact by seeking to specialize the forthcoming generation of teachers.

Most education degrees have one or no mandatory courses specifically related to SEN. So, the proposed solution consists of making relevant structural changes to master's and postgraduate degrees in education. These would suffer redesigns, with mandatory courses dedicated to SEN. The revised curriculum would incorporate mandatory SEN courses, meticulously designed to cover the full spectrum of disabilities, address individualized needs, discuss adaptive teaching methods, and delve into different inclusive learning environments.

Moreover, the courses would be shaped in a way that bridges theoretical concepts and practice, since most teachers feel like their education degrees were lacking in SEN practical components, according to the teacher survey. A very important aspect of this solution is based around experiential learning, in the sense that the practical component should be hands-on, by means of field trips, real projects with schools with SEN students, or internships. Inviting guest speakers who are experienced in the matter is also a recommended action. Said speakers could be schools, institutions, experts, or people with SEN students as family members, with the latter being a great tool to properly understand the day-to-day implications of having a disability. On

another note, the suggestion is that more SEN-related thesis topics or internships are made available. Ultimately, this solution would ensure that all future teachers have a deep understanding of SEN, helping them build the required skill set to deal with every type of disability.

8.1.1. Proposed Courses

Two mandatory courses are proposed to complement the master's degree, whereas one is proposed for postgraduate degrees.

The courses suggested for the master's degree would be A: "Foundations of Inclusive Education" and B: "Inclusive Education Practices", with both counting towards the same ECTS as a main course.

Course A would provide the course takers with the assumptions that make inclusiveness a key element for the success of students with SEN. It would then give an historical background, with international facts and best practices, whilst delving into the details of the Portuguese context. A first contact on how to deal with very contrasting situations is given, with concepts and evaluation methods covered in the course. By covering all types of disabilities, understanding their needs and through real case studies and guest speakers, course takers would gain a very solid foundation regarding inclusive education.

Course B builds upon the foundational knowledge acquired in the previously described course and has the goal of empowering teachers with the comfort of dealing with every possible scenario. Adjusting to families' concerns and suggestions, providing SSEN with a basis for transitioning into life after school, as well as dealing with setbacks are all course contents. It is a more practical approach, relying on collaborative projects and visits to schools, as well as engaging with families, to gather insights. Course takers would master different teaching

techniques, according to the different needs, acquiring the skills to take advantage of RTPs and PITs, to properly deal with SSEN.

The course for the postgraduate degree would be a combination of both courses mentioned above, with course B having a heavier weight. This course would also count towards the same ECTS as a main course.

In both these courses, asynchronous content should be provided to those enrolled in them. Reports and other information vehicles detailing different approaches, as well as answering different questions that might emerge when teaching students with SEN, should be made easily available for teachers, as in the case of the mentioned international best practices (section 3.1. *International Benchmark*). This should be key to guarantee a lasting impact and a first step to a quick resolution of problems that might arise.

8.1.2. Implementation Plan

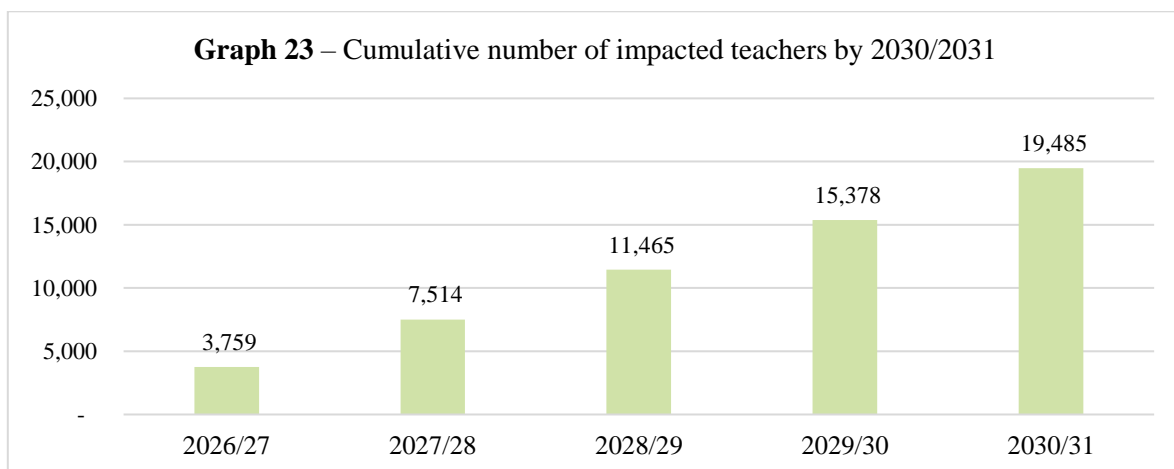
Implementation would be split into two phases. The first phase would consist of adjusting the curriculum of master's degrees. This would be done during the present academic year of 2023/2024, where the implementation efforts and aforementioned structural changes would be made, in order to have the redesigned degree starting in 2024/2025. The second phase consists of restructuring the postgraduate degrees. This second operation would be undertaken during the academic year of 2024/2025, with the new degree starting and finishing in 2025/2026. Please consider the Gantt Chart in **Appendix 47**.

With the master's and postgraduate degrees being two and one years long, respectively, the first batch of teachers to-be from the renovated degrees would graduate by the end of 2025/2026, assuming their academic track was successful. Given this, 2026/2027 would be the year in which the full effect of this solution would be felt, as it would be the year in which the first set of affected teachers enter the job market. It is important to highlight that teachers that are

already taking the degrees when the solution is implemented have the option to choose the proposed courses as electives.

8.1.3. Impact Assessment

To quantify the number of teachers to be impacted by the course, the estimated recruitment needs of 34,509 teachers until 2030/2031 were taken into account (Nova Knowledge Center 2021). Assuming the recruitment needs are to be met, this would be the number of new teachers entering the job market by the mentioned date. Since the teachers impacted by the solution would only enter the job market in 2026/2027, one must only consider the recruitment needs from then onwards, in order to assess the impact of the solution. As such, the solution is predicted to impact 19,485 teachers by 2030/2031, however its impact is expected to be everlasting, as these changes would influence teachers graduating for decades to come (Graph 23).



Legend: 19,485 teachers are expected to be impacted by 2030/2031.

When it comes to costs, this solution forecasts insubstantial values, involving administrative costs, human resources adjustments, and training, as well as other resource costs.

8.2. Qualifying Current Faculty

It is important to characterize that this second approach is as a short-term solution, since the number of regular teachers requiring qualification is limited, and the upcoming generation of teachers is set to benefit from the long-term solution explained in the previous section, rendering this solution unnecessary for them.

The chosen strategy involves implementing a short online course to equip regular teachers with the necessary skills for dealing with and including students with various types of SEN. Upon enrollment in this course, teachers would gain access to a platform containing course instructions and content. The course is designed to take 25 hours, with 20 hours dedicated to asynchronous classes and 5 hours to online practical sessions.

The asynchronous component would rely on pre-recorded videos featuring specialists who provide guidance on tailoring classes to meet the needs of SSEN. The platform would be organized with a page categorizing videos based on the types of disabilities students may have, encompassing physical, sensory, intellectual disabilities, and mental illness. During the asynchronous phase, teachers can manage their time and complete the coursework at their own pace, but to successfully pass the course, all videos should be viewed within a two-month period, requiring an average commitment of 2 hours and 30 minutes per week. It is mandatory for teachers to complete this asynchronous segment before proceeding to the online practical classes. At the course's conclusion, teachers will have the option to save these instructional videos for future reference. The latter is a measure responding to feedback from teachers who expressed the need for continued access to such resources, in the survey to teachers.

A strong practical component is key for most teachers, as seen in the teacher survey. As such, great importance is attributed to this aspect. The online practical classes would be held in the last week of the course, with two classes of 2 hours and 30 minutes. These practical classes

would be held outside the professors' class schedule and would have an average of 30 attendees. In said practical classes there would be an instructor guiding the class, fomenting teachers to expose real-life scenarios where would not know how to adjust their classes to better include SSEN, with room for discussion and clarifications from the instructor.

8.2.1. Solution Target

The primary challenge lies in ensuring all regular teachers enroll in the course. To enhance its attractiveness, regular teachers completing this course would earn 25 hours applicable to their career progression, and the course itself would be provided free of charge. It is important to highlight that teachers that have already completed the mandatory continuous or specialized training requirements, would have this course counting towards their next mandatory training requirements for career progression.

Recognizing that voluntary participation alone may not be sufficient, the course would be made mandatory for teachers under the age of 45. Any new teacher before 2026/2027, which is the estimated date for the previously explained solution to start bearing fruits, would also have to mandatorily take the course. Unless properly justified, teachers who do not attend this course cannot progress in their level of teaching career until their course is done.

Those aged 45 or older could optionally partake in the course, also free of charge. The age threshold of 45 years old was selected, in order to guarantee investment reasoning, in a sense that those taking the course would still have a long career ahead, to take the best of the course.

Furthermore, critical regions have been identified in section 6. *Matching Demand and Supply*, considering the ratio of SSEN to one SET. Teachers in these regions will be prioritized, so as to quickly improve conditions for SSEN where needed the most. Age will not be a prioritization factor when calling teachers to undertake these courses. Instead, the focus will be on fostering diversity in practical classes by including teachers with varying levels of experience aiming to

create a dynamic learning environment with a range of perspectives and examples to enrich the training experience.

8.2.2. Quantifying Impacted Teachers

For the sake of quantifying the number of teachers that would be impacted by this measure, one needs to understand the total population at stake.

To estimate the total number of teachers in 2023/2024, two factors were taken into account. Firstly, to keep a basis of consistency and relevance of data, the number of 120,842 teachers in 2020/2021, mentioned in section 5.3. *Adverse Effects of the Identified Causes*, was considered. Secondly, the 2021 DGEEC report forecasts the yearly teacher recruitment needs until 2030/2031, which were thus regarded as the total number of recruited teachers per year to come. Considering the estimated recruitment needs from 2020/2021 to 2023/2024, current faculty is estimated at 129,320.

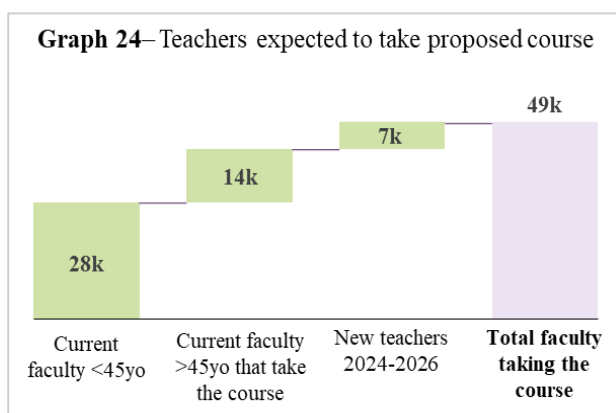
To estimate the teacher distribution across different ages, Edustat's 2019 (EDUSTAT 2020) data detailing the percentage of weights per age group was assumed as constant and applied to 2021's values, considering that any new teacher between then and now would be aged under 30 (**Appendix 48**).

Having analyzed and discriminated the potentially impacted teacher population, one can proceed to quantify the number of teachers impacted by the proposed measure. So, the task at hand is to understand the number of current teachers under 45 years old, those over the age threshold who would willingly take the course, as well as new teachers until 2026/2027.

To estimate current teachers under the age of 45, the aforementioned percentage of teachers under 40 years old was applied to the known number of teachers in 2020/2021, resulting in 19,746 teachers (who would be under 43 years old in 2023/2024). To this value, the 8,478 teacher recruitment needs until 2023/2024 were summed up, adding up to 28,224 current

teachers under 45 years old. To quantify the number of new teachers in 2024/2025 and 2025/2026, one can consider the forecasted recruitment needs of 3,230 and 3,316 teachers, respectively. Combining the two years would result in new 6,546 teachers (DGEEC & Nova Knowledge Center 2021).

Finally, to assess the number of teachers over 45 years old who would willingly take the course, answers from the teacher survey were considered. When asked “*Would you be interested in further specializing in SEN education?*”, 69% of teachers from the 45+ age gap answered “*Yes*”, from which only 20% were assumed to actually partake in the course when given the opportunity, resulting in around 14% of teachers over 45 years old taking the course. Given the 101,096 regular teachers aged above 40 years old in 2020/2021, which is approximately 84% of the total (Edustat 2019), the total number of teachers above the age of 45 doing the course would be equal to 13,944.



Legend: The total number of expected course takers will be 49k.

Adding current teachers under 45 (28,224), new teachers (6,546), and teachers over 45 who would take the course (13,944), the total number of expected course takers would be 48,714 (Graph 24).

Furthermore, in order to prioritize specific regions, it is important to understand where the teachers taking the course are. For such

an analysis, the (DGEEC 2022b) distribution of regular teachers in the 2020/2021 academic year was considered and its weights per NUTS III were applied to the total number of course takers, to estimate the number of teachers per region (**Appendix 30**). For the sake of simplicity, the estimations for the NUTS II and III levels are shown in **Appendix 49**. The *Norte* and *Lisboa*

would be the regions with the most teachers taking the course, with 17,930 and 13,072, respectively. The NUTS III regions with the highest number of teachers taking the course would be *Área Metropolitana de Lisboa* and *Área Metropolitana do Porto*.

8.2.3. Implementation

Based on the outlined approach, the implementation of this solution is projected to span across six years, starting in the academic year 2024/2025. There would be a seven-month preparation phase, from February 2024 to August 2024. The relatively brief preparation period is attributed to the decision to not have the government directly handle platform development and staff hiring for online classes and support. Instead, the Portuguese Government would enter into agreements with existing entities that already offer similar courses and adapt their courses to meet the specific requirements outlined. This approach aims to accelerate the implementation process and leverage the expertise of entities experienced in delivering online courses.

The proposed plan would be to start the courses in the first week of September of 2024, with subsequent batches of teachers beginning every following week. Once started, participants would have a two-month period to complete the asynchronous part of the course. For instance, the batch starting in the first week of September is expected to finish the asynchronous component by the last week of October. Subsequently, the automatically scheduled online practical classes for this batch would be conducted in the first week of November, the date for the first batch of teachers to finish the course.

Moreover, this plan involves a structured approach with each batch including seven classes, ensuring that each online practical class accommodates an average of 30 attendees. With this arrangement, 210 teachers would start the course every week from the first week of September.

The only dates where online practical classes would not be held would be during the summer break, from the last week of June to the last week of August, and the Christmas break, including

the last two weeks of December and the first week of January. However, a potential adjustment would have to be made for teachers starting the course in the third week of October to the first week of November, that were supposed to finish their course in the Christmas break dates, requiring a three-week delay in completing it. Similarly, teachers starting from the last week of April to the third week of June, that would attend the online practical classes during the summer break, would experience a nine-week delay. This would mean that in the following weeks to the breaks, there would be the need for double the number of practical classes. To avoid this, teachers would not be called to start the course from the third week of October to the first week of November and from last week of April to the third week of June. Summing up, there would be 40 weeks of courses starting and finishing per year, with the exception of year one, which despite having courses starting from the get-go, would only see the first courses finishing after two months and a week.

Considering the 40-week year and the 7 classes starting each week, with an average of 30 course attendees, one can estimate 8,400 finished courses per year, excluding the first year. Year one of the implementation is an exception, with 6,720 courses, since, as explained before, no course would be finished in the first 8 weeks.

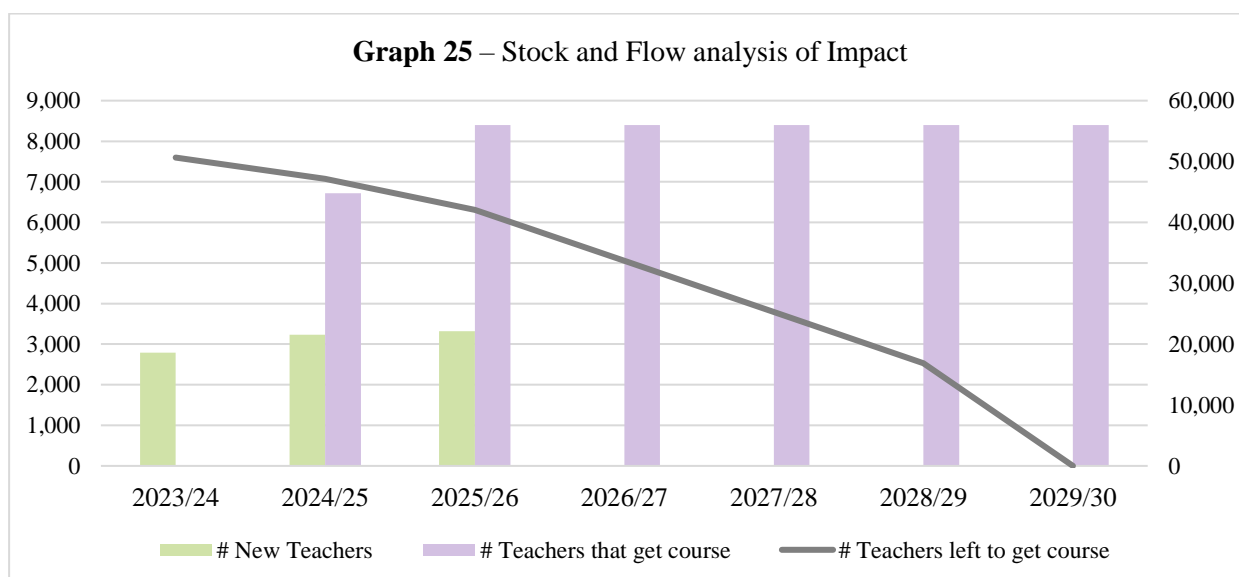
To determine the yearly enrollment of teachers, six buckets were created, one for each year. Said buckets would be designed in a way that the number of teachers approximately match the estimated number of courses per year, so 6,720 in the first bucket and 8,400 in the rest. To create the buckets, priority would be given to the regions that display the worst ratio of SEN students per special education teacher, as mentioned before (Table 3).

With *Região de Leiria* and *Área Metropolitana de Lisboa* being the NUTS III regions with the worst SEN students to SET (11.4 and 11.2, respectively), (**Appendix 33**), they would be allocated to Bucket A, which would take the course in the first year of implementation,

2024/2025. Those remaining from *Lisboa* would fit into Bucket A, alongside some teachers from *Região de Aveiro*, that has a ratio of 10.9. The last bucket, Bucket F, would consist of the regions with the lowest SEN students to SEN ratio, as is the case for *Alto Tâmega and Terras de Trás-os-Montes*, for example, with ratios of 5.5 and 5.6, respectively.

Year	Prioritization Bucket	Regions	Number of Teachers Taking the Course
2024/2025	A	Região de Leiria, 41% of Lisbon M.A.	6 688
2025/2026	B	59% of Lisbon M.A., 40% of Aveiro	8 424
2026/2027	C	60% of Aveiro, Alentejo Litoral, Lezíria do Tejo, Oeste, 49% of Porto M.A.	8 425
2027/2028	D	51% of Porto M.A., Cávado, Coimbra	8 332
2028/2029	E	Tâmega e Sousa, Baixo Alentejo, Algarve, Médio Tejo, 81% of Ave	8 390
2029/2030	F	19% of Ave, Beira Baixa, Viseu Dão Lafões, Beirras e Serra da Estrela, Alentejo Central, Douro, Alto Alentejo, Alto Minho, Terras de Trás-os-Montes, Alto Tâmega	8 455
Total	-	-	48 714

Considering all the factors mentioned in this section, one can visually understand the implementation and impact of this proposed solution, by mapping out the number of teachers that need the course and the ones that are taking the course, over the years (see Graph 25).



Legend: By 2029/2030, all teachers would complete the course.

Represented by the line and mapped on the secondary axis, the total teachers remaining to take the course is regarded as a Stock value, as it takes into account new teachers needing courses and the ones that have already taken it.

The columns represent Flow type data and are mapped on the left axis. In green, one can see the new teachers entering the scene that are required to do the course. From 2026/2027 onwards there are no new teachers needing the course, due to the previously fact that teachers that graduate after that date will have faced the effect of the solution presented in section 8.1. *Qualifying Upcoming Faculty*, and thus do not need to partake in the course. In purple, the number of teachers getting the course in the respective year is stated, according to the bucket analysis.

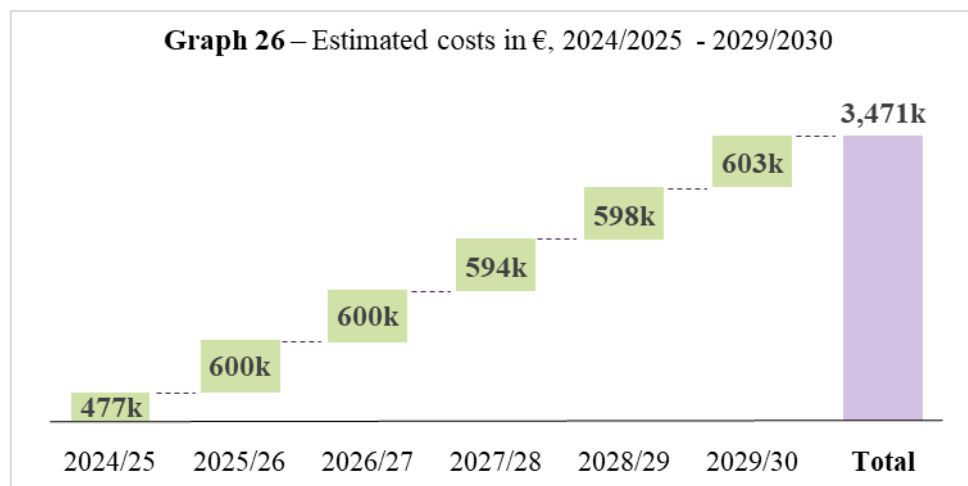
By 2026/2027, 48% of the initial number of teachers required to take the course would have taken it. Furthermore, it is worth noting that, by 2029/2030, all the targeted teachers that would have completed the course.

8.2.4. Initiative Costs

To understand the impact of the project, all costs implied to the government need to be considered. For such, the cost per course needs to be considered.

To estimate the price per course attendee, a non-exhaustive benchmark was conducted, considering six entities that provide SEN education courses, *Traininghouse*, *EdKid*, *Evolui*, *Dar+*, and *Sinerconsult* (**Appendix 50**). Having analyzed these entities, their price per 25 hours was calculated, resulting in an average of €110 per course attendee. Given that this would be a large-scale state-run initiative, a quantity discount of 35% is considered. In this sense, the cost per teacher taking the course would be €71.

Taking into account the 48,714 teachers taking the course, one can estimate the total cost of the initiative to be around €3.5M. These costs would be spread around the six years project duration, according to the implementation method covered above (Graph 26).



Legend: A total cost of €3,471,422 by 2029/2030 is estimated.

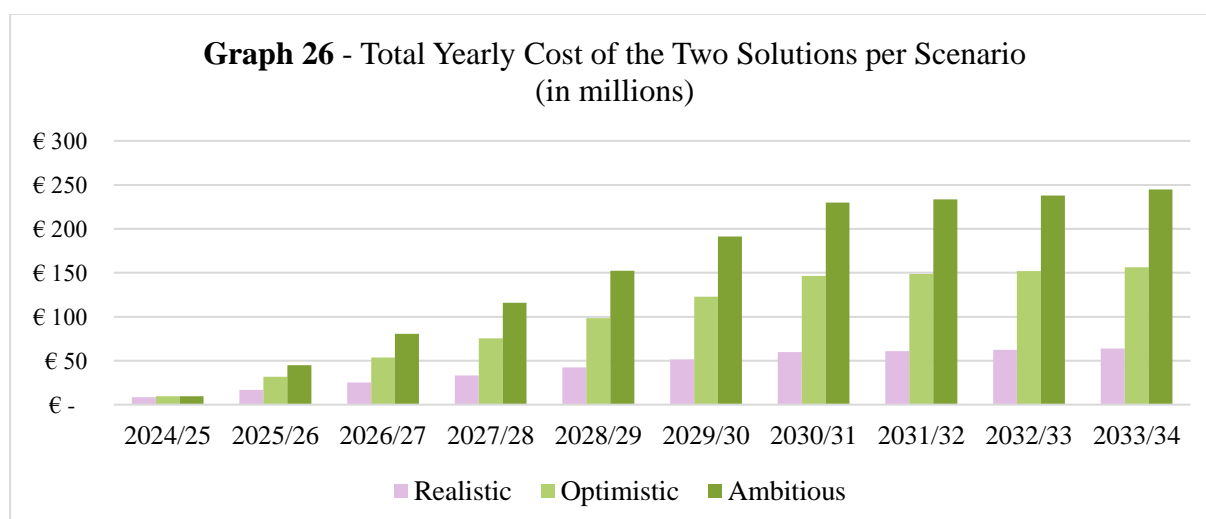
As the first year is expected to have less finished courses, costs in 2024/2025 are predicted to be lower than the other years, standing at €476,599. The year that would cost the most would be 2029/2030, estimated at €602,508. By the end of 2029/2030, the total cost would be €3,471,422.

9. Financial Impact of Proposed Solutions

What are the costs and overall impact of the proposed solutions?

To move forward with the implementation of the solutions of this Work Project, these should be presented to the Ministry of Education, advocating said measures. Therefore, one crucial aspect that will influence the Ministry of Education's decision is the financial impact of the consolidated solutions, which is the part assessed in this section. This will include the predicted expenses, the budget for education implications, and the Return on Investment (ROI) associated with these solutions.

Starting with the predicted expenses, Graph 26 illustrates the annual costs of both measures combined, considering three scenarios that incorporate the investment in the second solution (section 7. *Solution 1: Increasing Supply of Special Education Teachers* and section 8. *Solution 2: Qualifying Regular Education Teachers*). It is important to note that the impact of solution 2 on the overall expenses is minimal, representing only 0.8%, 0.4%, and 0.2% of the total costs in the realistic, optimistic, and ambitious scenarios, respectively.



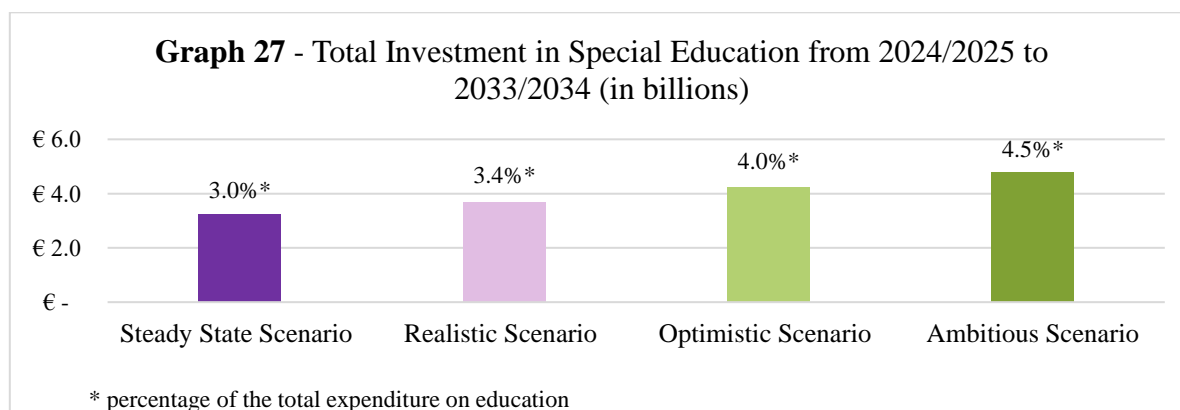
Legend: The second solution has a minimal impact on the overall costs and the ambitious scenario can triple the costs when compared with the realistic one.

Furthermore, it is crucial to assess the implications of these solutions in terms of the overall additional investment that the Portuguese government would incur in, possibly increasing its education budget. This budget increase would come from an increase in the investment in special education fomented by the two proposed solutions. To quantify this impact, projecting the investment in education until 2034 was a key step, enabling the assessment of the percentage allocated to the business-as-usual scenario, upon which the additional costs of these solutions can be added.

In order to forecast the expenditure on education, historical data regarding the public expenditure on education was collected, from the year 1995 to the most recent available value of 2021, and by analyzing its behavior, one can see how Portugal had a steady increase in investment on education, from 1995 to 2010 (Pordata, n.d.). From this point onwards Portugal had a period of disinvestment, during 2010-2013, due to the contractionary economic policies, especially the cut in public spending, that were in place during this period of time. This corresponds to the years when Portugal suffered most from the global financial crisis of 2007-2008. Also, since 2014, the year marking the end of the external intervention (Troika) in Portugal, the expenditure on education has been gradually recovering (**Appendix 51**). Due to this, the forecast made has as background the average percentual change in the public expenditure on education from 2014-2021. This will mean that each year this investment will increase on average by approximately 0.85%.

From this total investment in education, a proportion goes to special education (**Appendix 52**). Given that in the year 2020/2021 the budget for special education was approximately €301M (European Commission 2023), which represents around 3% of the total expenditure of education of that year, this percentage will be assumed for the following years, until the year 2033/2034, for the business-as-usual scenario. Considering this, by adding the extra costs associated with the proposal to the business-as-usual scenario, it can be inferred that, in terms

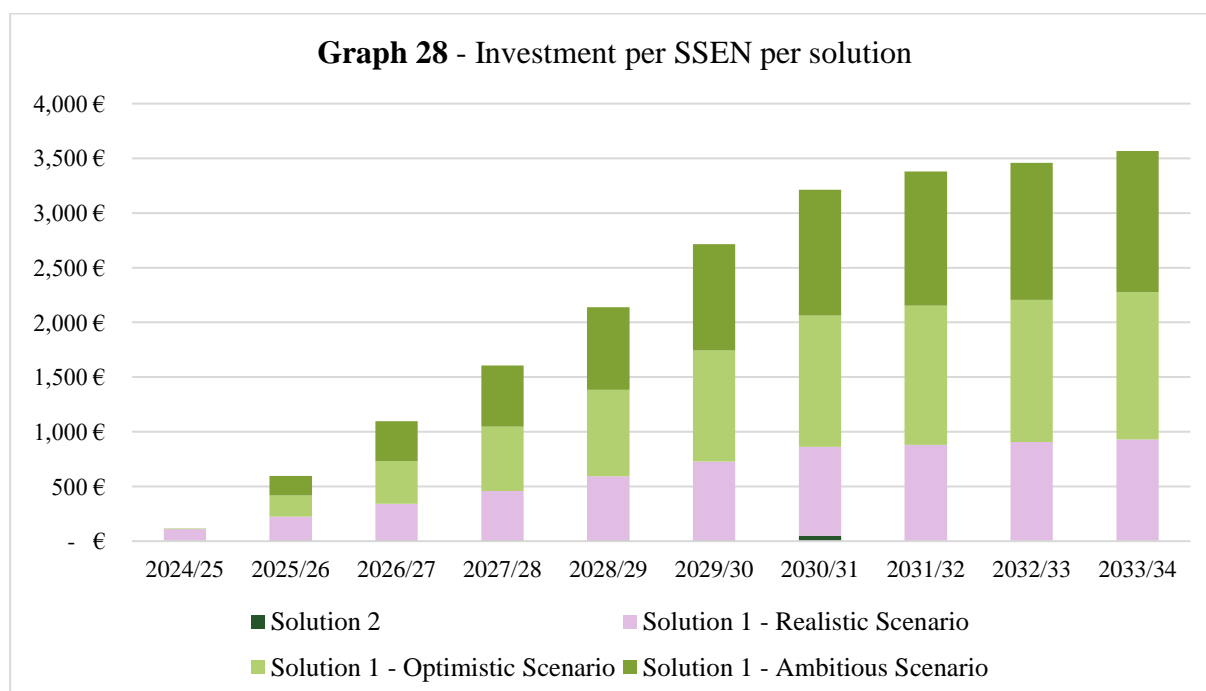
of the increase in overall investment in education, Portugal would need to allocate an additional 0.4%, 0.93%, or 1.44% in the realistic, optimistic, and ambitious scenarios, respectively, from 2024/2025 to 2033/2034 (Graph 27).



Legend: There is the need to allocate additional 0.4%, 0.93%, or 1.44% in the realistic, optimistic, and ambitious scenarios, respectively.

In section 3.1. *International Benchmark*, it was mentioned that Portugal invests €9,851 per student with disability with €3,849 being from investment in special education. To measure the impact of these solutions on the investment per SSEN, forecasting the evolution of the investment in special education in the business-as-usual scenario, was a crucial step. This scenario was obtained by dividing the forecasted yearly investment in special education by the SSEN forecast presented in section 4.2. *Quantifying Demand in the Portuguese Public School System*. Nevertheless, this forecast was only made until the year 2030/2031. From that forecast onwards, the assumption made was that the number of students would continue to decrease until 2033/2034. This projection was calculated by adding the average recovery rate of 0.13% to the growth rate observed in the preceding year. Given that the amount invested in special education has an increasing trend contrarily to the decreasing total number of SSEN, the amount invested in special education per SSEN will increase from 2020/2021 to 2023/2024 by 30% in the business-as-usual scenario.

Additionally, in Graph 28, one can identify the extra amount that would be invested per SSEN. This would mean that in the year 2033/2034 the investment in special education per SSEN would have increased comparatively to the business-as-usual of that year by 19%, 47%, and 73% in the realistic, optimistic and ambitious scenarios, respectively. Also, when compared with the investment in special education per SSEN of the year 2020/2021, €3,849, to the expected investment in 2033/2034, would have an increase of 50% with an investment of €5,832 the realistic one, 90% in the optimistic one with a value of €7,175, and of 120% in the ambitious case with €8,467 invested in special education (**Appendix 53**).



Legend: The impact on the investment per SSEN is considerable, with the last year of the forecast reaching a minimum increase of 19% in the realistic scenario, comparatively to the business-as-usual.

In section 3.3. *Best Practices Mismatch*, different tiers of investment in SSEN were discussed where Portugal stood alone among the top 14 OECD countries, with an investment below €10,000 (**Appendix 8**). When summing the forecasted values of investment in special education per SSEN to the investment in standard education, which was assumed to be increasing at the same rate as the investment in special education per SSEN in the business-as-usual case, it is possible to conclude that Portugal would automatically be placed in Tier III, in this scenario.

This grouping includes New Zealand, Spain, and Ireland, assuming these countries maintain their investment levels.

This conclusion holds in all the other three scenarios, although there's a higher likelihood that if the optimist or ambitious scenarios are considered, Portugal would more easily approach Tier II in the future (**Appendix 54**). Also, it is important to note that considering the costs of these scenarios the government would more likely choose the realistic one. Nevertheless, this will depend on the sources of funds that the country would have available at the moment of implementation.

It is important to highlight that, although the costs were only estimated in the years of implementation, until 2033/2034, the expenses associated with the first solution will be maintained at least for the duration of the career of the newly hired SET.

Moving to the ROI of this strategy, due to the complexity of the research area, it is not easily quantifiable, but there are some benefits that can be identified by following the proposed solutions.

One of the primary advantages relies on the improvement of academic results of students with SEN, due to the better-quality teaching methods of regular teachers and higher presence of special education teachers that will allow the educational experience to become a more tailored and effective for students with diverse learning needs.

Additionally, a crucial aspect of this strategy is its broader societal impact since this strategy focuses on levels of education starting from pre-school to secondary school. Early exposure to inclusive education instills values of acceptance and diversity in students, cultivating a foundation for a more inclusive society. Consequently, due to better quality education, students with SEN are more likely to join the workforce and to be more productive, thus being more independent and possibly increasing their quality of life.

Moreover, there are more agents that would be affected by these solutions, for example the legal guardians of the SSEN by knowing that teachers are well-qualified and equipped to handle special education needs can boost their confidence in the overall education system. Additionally, these solutions lead to the reduction of the need for external support services, since legal guardians may feel like their children no longer need costly outside school teaching support.

Finally, regular teachers can also be impacted by this, feeling more confident, competent, which may increase their job satisfaction, and higher retention rates. The objective is that if a survey similar to the one discussed in section 5. *Supply*, which was administered to teachers, is conducted seven years from now, the percentage of SETs feeling they have excessive number of students (currently at 64%) would decrease. Simultaneously, the satisfaction level of regular teachers regarding their qualifications in special education would also improve.

In essence, the proposed strategy not only focuses on improving academic outcomes for SSEN but also cultivates a more inclusive society, focusing on all levels of the Pyramid Framework of Life Quality for people with SEN built in section 3.1 *International Benchmark*. Besides, this strategy by having three alternative scenarios that although differ on the size of the impact, may adjust to different financial resources available.

10. Final Recommendations and Conclusions

Which existent problems are not covered in the proposed solutions, and how may they be addressed in the near future?

This Work Project began with a question to be answered: how can the teachers be empowered to work with inclusion?

In order to do so, a benchmark analysis was performed to find the best practices in the area, both nationally and internationally. Afterwards, a deep characterization of the demand (students with SEN) and the supply (teachers) was made, where the root problems were identified with the aid of research performed and two surveys conducted as reliable sources of primary data. The next step was to understand what the gap between demand and supply was and, finally, the two solution proposals came up as a possible answer to fill in this identified gap.

However, while the explanation might sound simple, this problem is anything but simple. On the contrary: it is, indeed, a truly complex one. As such, throughout the analysis performed, plenty of subproblems were found, which all actively need an answer. While the solution proposed aims to answer the two main identified issues, there are some which end up not being totally addressed by it.

As such, the aim of this final chapter is to provide final recommendations, which intend to be high-level answers to the problems found along the way and which, ideally, should be looked at and solved in the long term by those in charge that have the means and responsibility to do that.

Following the structure used throughout the project – the Pyramid framework of Life Quality of SSEN – the final recommendations will also be organized within these three topics.

The first one is Social Inclusion. In the beginning of this Work Project, one topic explored the different approaches to Special Needs education, where three models were defined: the Mainstreaming, the Hybrid, and the Specialization (section 3.1. *International Benchmark*). Regarding this, Portugal was highlighted as being one of the countries in which the Mainstreaming model is predominant, with 84% of SSEN being taught under mainstreaming settings (Hoteit 2022).

However, throughout the research conducted, and especially taking into account the comments received from families of SSEN, the actual application of this model might not be working in the most efficient way. Plenty of the complaints received claim that these students are being closed off in the Special Needs room, thus segregated from the remaining students. While it is hard to pay the attention needed to those students if these are always in the regular class, the Mainstreaming model does not suggest that every SSEN should be integrated in regular classes all the time, but at least 80% of it. In the survey conducted within the families of students with SEN, when asked the question about which setting would be more suitable for learning, around 73% answered that the best one would combine being integrated in a regular class with individual support, being the latter done inside or outside the regular classroom. On the other hand, only around 6% answered that the best setting would be a Specialization one, proving that the application of the Mainstreaming model in Portugal follows the desire of the families of SSEN. However, many of the gathered comments on this matter state that, while on paper this system is the proposed one, what happens in reality ends up being different, and plenty of respondents complain about their family member being kept in a special room for most of the time.

If the Portuguese approach on Special Education is sustained by the belief that the Mainstreaming is the setting that helps to foster Inclusion the better, then it must be correctly applied. Thus, the recommendation that follows is that the Ministry of Education closely

follows the cases where there is an active complaint about this inclusion method not being correctly applied, and to try to understand what is missing for it to happen in a way that makes sense for each student's curriculum.

While it is important to ensure that the SSEN are integrated in regular classes, another issue raised was the lack of adaptation of the school activities for SSEN. Even though these students end up, many times, following a specific curriculum and that the subjects taught in a regular class cannot always be adapted to accommodate the existent special needs curriculums along with the regular ones, it is crucial to ensure that there is an adaptation of the social activities done in school so that they may include all students. This includes seasonal school parties, school excursions, and sports – the more activities the better. Moreover, in order to foster better inclusion, these students should be involved in association with their regular class, and not only with their special class, which ends up happening many times.

Regarding Inclusive Education, there are many measures that should be highlighted for future reference.

Starting off by looking towards the first proposed solution (section 7. *Solution 1: Increasing Supply of Special Education Teachers*), the initial strategy aimed to reach a number of teachers in line with the proposed scenarios. Should the Government choose the realistic option from the three available, it can always be improved, given the existent flaws in the system, which will only be overcome after 2030/2031, when the large drop in teachers due to their retirement is neutralized. It is, therefore, important to recommend a re-evaluation to the Ministry of Education, after the time foreseen by the projections (2030/2031), to understand whether it makes sense to continue with the proposed measures or to change them toward new objectives. Moreover, an ambitious goal for the future could be to try to reach one of the benchmark ratios of Germany and Wales (respectively, 5:1 and 7:1).

By 2030/2031, assuming that the Government would choose the realistic scenario as it is the most feasible one, 1,948 extra SETs are expected to be working, in addition to the ones that would already be added each year, improving the current ratio from 9.9 to 9.2 in the last projected year. However, in the longer term, the Government may opt to match the Portuguese ratio with the Optimal (Wales ratio) and even Ambitious (Germany ratio) ones, depending on the investment allocated to this area. To match the 7:1 and 5:1 ratio, Portugal, which is below in the inclusion of SSEN in comparison with both countries, would need to allocate an additional 2,842 and 5,577 teachers for special education group recruitment, respectively, not counting those already added by 20230/2031. In order to do this, vacancies should be opened up on specialized SEN courses in proportion to this recruitment need. In this sense, in addition to those already established in the main solution, initiatives would be created such as "Spend a day with me in the office", which allows those interested to experience a day of a teacher, in order to understand all the activities they perform throughout the day. This initiative is only suitable in the long term because in the meantime the key problems of attracting teachers would have been solved and it is therefore expected that not only will teachers be more willing to take part in this type of initiative, but that the school organization will be optimized in order to present projects and clubs that teachers are assigned to in addition to their teaching component.

Another identified issue has to do with the attractiveness of the existent career processes. One recommendation proposed has to do with the use of digital tools in these processes, as previously identified as being a best practice and a mismatch for Portugal (section 3. *Current Landscape*). The aim is to centralize both training and career progression on a single platform for individual access. As far as training is concerned, the goal is to further diversify CFAEs' continuous training offer in order to match private institutions in terms of competitiveness. To do this, the questionnaire suggested in the main solution will be used as a resource, in order to provide training in the most requested areas, after those already introduced by 2030/2031. The

experience of registering for training has been criticized for its complexity. Teachers receive training offers by email and confirm their attendance several times during the process. It is therefore essential that the registration process is unique and automatic on the platform, with subsequent information on the grade obtained and completion status, with automatic cross-checking of data for career progression, so that verification of requirements is also easier to validate. On the platform, there should also be a forum for clarifying doubts so that teachers can help each other with questions in the area of SEN, and also a space for important communications, in which it is possible to find out about the existing benefits to be used for continuing training (time off for training) and for specialized courses (sabbatical and unpaid leave and student-worker status), with the respective registration deadlines for any of them.

Regarding career progression, a future recommendation is that the move to the next level is introduced for all teachers with a "Good" rating in their performance evaluation. This measure not only allows for a greater sense of fairness in the process itself, something that teachers indicate is unfulfilled, but also attracts both new teachers and those from the private sector who see one of the obstacles to career progression mitigated, thus making it much more attractive. In addition, in order to promote a wider entry of new talent, specialization in special education after entering the teaching career can reduce one year of service time in the step in which the teacher is situated. It's important to note, however, that this measure is temporary and will end once all the necessary teachers have joined. Finally, as is the case with training, an exclusive page on the criteria for moving up a step should be available on the platform, with a forum for clarifying doubts, so that problems such as unaccredited training don't happen again.

Finally, as a recommendation proposal, all the extra teachers added to the special education recruitment group have to transition to a permanent position, in order to simplify the national competition for teachers, which should only be held for temporary needs, as provided for in the law, and also to reduce the number of vacancies not filled each year.

Moving on to the following and last parameter, some recommendations were also set aiming for Professional Inclusion. The goal of the proposed measures is not to adapt the job market to receive students with SEN, as it leaves the scope of this project, but to guarantee that these students are prepared to enter this new phase in their lives, both psychologically and in by having the actual skills needed to succeed as professionals and self-sufficiency adults.

Referring back to the survey conducted within a sample of families of SSEN, one of the parameters evaluated was how the respondents felt about whether the special education curriculum was the right one to prepare the students for the life post-school. In reply to the question of *Do you feel like your relative is being properly qualified in school, preparing them for inclusion in the labor market?*”, around 80% of the respondents answered “No” or “Partially”. Moreover, when asked about whether they believed the current education system was preparing students with SEN to be autonomous, about 74% responded “No” or “Partially”. Many participants shared their opinion on the current curriculums (even the adapted ones) being too focused on academic learnings and on theory rather than on practical activities that can indeed help SSEN reach self-sufficiency.

Regarding this topic, some interesting suggestions were given, mostly including the re-evaluation of the current individual programs that result from selective and additional measures, so that they can address the true needs of students with SEN. While it is in fact important to teach them adapted academic learnings, during the school years it is crucial to prepare these students for a possible professional future, and one where they can be autonomous. For example, the inclusion of practical activities in their curriculum, such as horse-riding, sailing, swimming or cooking (all examples that occur in some public Portuguese schools), may be a way of keeping the students happy and motivated while at school, having them learn new activities that help them develop broader skillsets, and possibly helping them to find a new passion that may lead to a career path.

Moreover, an interesting measure could be to teach SSEN to develop basic skills needed for their daily basis as young adults. This could include going to the grocery store; learning how to deal with money; learning how to use the public transportation system, among other things. These are only examples, mostly coming from real suggestions given by relatives of people with SEN, but the actual curriculum could be left to the diagnosis of the Special Needs team, since the basic skills to be acquired depend a lot on the students.

Nevertheless, teaching SSEN this type of skills may be a way of keeping them motivated and providing them with useful learning.

While some of these last examples come from real scenarios in Portugal, the majority of the sample analyzed complains about the schools not having enough resources to actually change their relatives' curriculum, either due to lack of time, teachers or money.

Thus, this recommendation is dependent on the funding that the Ministry of Education gives to Special Needs teams, which could truly benefit from extra resources to fulfill these curriculum adjustments.

Moving on, the next recommendation is the extension of one of the practices that were analyzed as happening in Portugal – the PIT (section 3.2. *National Practices*). While this program is a very practical way of introducing the SSEN to the professional world, many times the result ends up being disappointing, in cases where the internship is not well suited for the student. In order to overcome this obstacle, the ICF has come up with a project, “ComPIT”, which consists of a platform that brings together students looking for a PIT internship and companies who wish to receive these students. This allows both for companies to develop their inclusion policies in an impactful way, and for students to find an internship that motivates them and which is well suited to their profile, provided that the scale of the project allows for a big range of options. Therefore, to invest in this project, or even to create a State-owned methodology which fulfills

the same purpose, may be an interesting way of creating a student-internship match that leads to a beneficial experience for both sides.

Lastly, one best practice carried out by the UK which was previously analyzed (section 3.1. *International Benchmark*) has to do with the existence of a support scheme as SSEN transition from school to life after that.

All in all, the path towards an increasingly inclusive society towards PwD is not a clear one. There are many grey areas, which require Governments to put a real effort into the matter, in order to come up with feasible and innovative solutions. This Work Project had as its goal the creation of a model to empower regular teachers to deal with inclusion, which was addressed in the two proposed solutions (section 7. *Solution 1: Increasing Supply of Special Education Teachers* and section 8. *Solution 2: Qualifying Regular Education Teachers*), both through an increase of the number of SET, to support regular teachers, and through an increase in regular teacher training in SEN. Moreover, both solutions were analyzed regarding their impact, so that a prediction of the costs and returns is kept in mind. However, in order for Portugal to follow the countries targeted as examples, not only must this be considered, but also the recommendations highlighted in this last section.

As referred to in the Introduction of this project, to dream of a fully inclusive society might be utopian in the mind of many. However, even if said is true, the progress that leads a country towards the closest place to this ideal comes from the will of those who do not cease to believe in such reality. As such, on an ending note, the final recommendation that arises from this Work Project is that the Portuguese Government risks to believe in reality as well, and uses this belief as a motivation to keep on pursuing an inclusive society, where everyone is welcomed.

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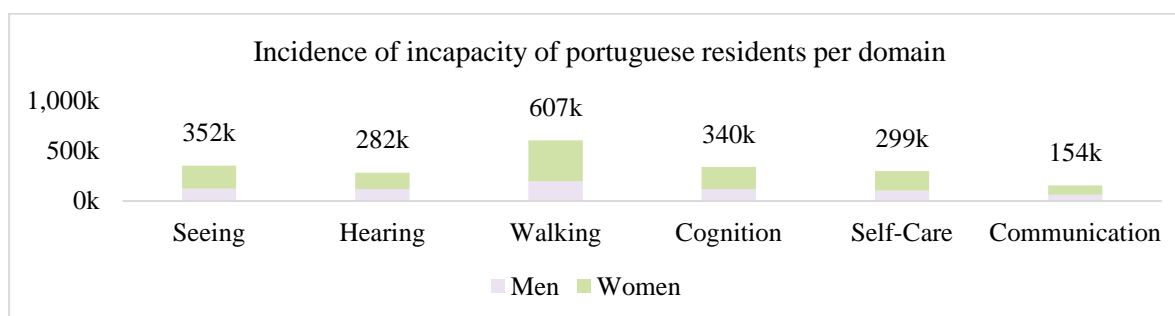
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12. Appendixes

Appendix 1 – Incidence of incapacity of Portuguese residents, per domain, in 2021



Legend: The most prevalent difficulty is in the domain of walking.

Appendix 2 – Number of SSEN enrolled in public schools in the top OECD countries

Students with SEN Enrolled in Public Schools				
Top OECD Countries	Total Number of Students	% Enrolled in Public Schools	Total Number of Students Enrolled in Public Schools	Total Number of Students with SEN
Luxembourg	106,180	82.3	87,386	6,105
United States	56,408,920	93.0	52,460,296	3,665,243
Denmark	1,166,783	72.0	840,083	58,694
Canada	6,116,521	91.8	5,614,966	392,301
Austria	1,269,351	87.6	1,111,952	77,689
Germany	12,132,123	96.1	11,658,971	814,577
Sweden	2,169,850	80.7	1,751,069	122,342
Netherlands	3,279,163	36.5	1,196,895	83,623
Belgium	2,390,381	81.9	1,957,722	136,780
Ireland	1,203,337	81.9	985,533	68,856
United Kingdom	13,465,969	34.0	4,578,429	319,881
New Zealand	1,088,585	94.2	1,025,447	71,645
Spain	7,739,658	81.9	6,338,780	442,871
Portugal	1,490,507	75.2	1,120,243	78,268

Appendix 3 – Total number of students enrolled in pre-school in the top OECD countries

Total Number of Students Enrolled in Pre-school							
Top OECD Countries	Total Population Size per Age Group			Enrollment Rate in Pre-school per Age Group			Total
	3 Years Old	4 Years Old	5 Years Old	3 Years Old	4 Years Old	5 Years Old	
Luxembourg	6,653	6,724	6,837	71.41%	97.93%	98.80%	18,091
United States	3,989,074	4,036,943	4,045,023	40.00%	40.00%	84.00%	6,608,226
Denmark	62,697	59,661	58,993	96.43%	98.02%	98.32%	176,942
Canada	393,930	399,957	403,705	77.05%	89.89%	95.76%	1,049,644
Austria	89,726	87,091	86,533	77.85%	93.93%	97.75%	236,243
Germany	807,816	782,143	771,479	90.02%	94.55%	96.57%	2,211,721
Sweden	124,681	122,848	124,569	93.90%	95.17%	95.79%	353,313
Netherlands	175,319	174,787	179,581	80.72%	95.11%	98.96%	485,476
Belgium	124,527	126,012	129,536	97.87%	98.27%	98.64%	373,477
Ireland	63,704	63,564	64,874	95.63%	100.00%	100.00%	189,357
United Kingdom	793,405	805,541	808,852	100.00%	100.00%	100.00%	2,407,798
New Zealand	62,620	62,960	63,940	81.28%	86.93%	97.72%	168,110
Spain	428,395	440,044	447,314	96.19%	97.47%	98.02%	1,279,458

Appendix 4 – Investment in special education in the top OECD countries

Investment in Special Education				
Top OECD Countries	Investment in Education (% of GDP 2020)	GDP 2021 Billion Euros	Investment in Education Billion Euros	Investment in Special Education in Euros
Luxembourg	3.3	84.25	2.81	120,681,078.06
United States	3.5	23,315.08	811.36	34,795,906,269.64
Denmark	4.7	387.05	18.20	780,652,259.20
Canada	4.2	2,026.90	85.21	3,654,322,037.65
Austria	3.7	535.82	19.71	845,389,082.54
Germany	3.9	4,913.17	192.45	8,253,287,957.84
Sweden	5.8	629.08	36.65	1,571,769,620.79
Netherlands	3.5	1,130.68	39.10	1,676,789,558.87
Belgium	4.9	689.48	33.78	1,448,869,151.76
Ireland	2.2	546.18	12.13	520,000,794.79
United Kingdom	3.9	3,375.53	132.96	5,702,165,821.63
New Zealand	4.2	245.36	10.31	441,948,956.89
Spain	3.9	1,952.70	76.44	3,278,025,858.61
Portugal	-	380.60	7.02	301,256,503.00

Appendix 5 – Total investment per SSEN in the top OECD countries

Investment per Students with SEN			
Top OECD Countries	Investment In Standard Education	Investment in Special Education	Total
Portugal	6,001.72	3,849.04	9,850.76
New Zealand	9,618.57	6,168.60	15,787.18
Spain	11,541.40	7,401.75	18,943.16
Ireland	11,775.65	7,551.98	19,327.63
Canada	14,524.84	9,315.10	23,839.95
United States	14,802.98	9,493.48	24,296.46
Germany	15,798.60	10,131.99	25,930.59
Belgium	16,516.95	10,592.69	27,109.64
Austria	16,967.68	10,881.75	27,849.43
Sweden	20,032.61	12,847.35	32,879.96
Denmark	20,738.96	13,300.35	34,039.32
United Kingdom	27,795.54	17,825.89	45,621.44
Luxembourg	30,821.20	19,766.31	50,587.51
Netherlands	31,266.16	20,051.68	51,317.84

Appendix 6 - Inclusion Matrix, Denmark

The Inclusion Matrix				
		Types of inclusion		
		Physical inclusion	Social inclusion	Mental inclusion
Communities	Formal, Professionally managed learning and development communities			
	Adult-child communities (interpersonal communities)			
	Informal, adult organized communities (relating to the institution)			
	Self-organized communities (relating to the institution)			
	Child-child communities (interpersonal communities)			

Appendix 7 – Best practices sorted out into the three Pyramid Framework parameters

Best Practices sorted out into the three Pyramid Framework parameters.		
SOCIAL INCLUSION	INCLUSIVE EDUCATION	PROFESSIONAL INCLUSION
<p>Mainstreaming as predominant model.</p> <p>Social skills included in curriculum.</p> <p>Social inclusion plays a role in the overall well-being of the child (inclusion matrix concept)</p>	<p>Training for inclusion included in curriculum of every teacher's formation.</p> <p>Special education teachers receive training on how to support regular teachers.</p> <p>E-learning platforms</p> <p>Digital tools (Assistive Technology)</p> <p>Personal plan for every SwD</p> <p>Allowance to stay longer than 18yo in school.</p> <p>Multidisciplinary approach combining different specialists.</p>	<p>Support during school time (career guidance)</p> <p>Systems to support transition to adulthood</p>

Appendix 8 – Tiers of investment per SSEN and the corresponding countries and best practices

Investment per SSEN	Countries	Best Practices based on the conference on inclusive education held by the French Ministry of Education
Tier I: $\geq 30,000\text{€}$	<ul style="list-style-type: none"> · Netherlands · Luxembourg · United Kingdom · Denmark · Sweden 	<p><u>Social Inclusion</u></p> <ul style="list-style-type: none"> · Mainstreaming as predominant model · Social Inclusion plays a role in the overall well-being of the child (inclusion matrix concept) <p><u>Inclusive Education</u></p> <ul style="list-style-type: none"> · Digital tools (Assistive Technology, online platforms) <p><u>Professional Inclusion</u></p> <ul style="list-style-type: none"> · Systems to support transition to adulthood
Tier II: $20,000\text{€} > x > 30,000$	<ul style="list-style-type: none"> · Austria · Belgium · Germany · USA · Canada 	<p><u>Social Inclusion</u></p> <ul style="list-style-type: none"> · Mainstreaming as predominant model <p><u>Inclusive Education</u></p> <ul style="list-style-type: none"> · Training for inclusion included in curriculum of every teacher's formation · Special education teachers receive training on how to support regular teachers · Multidisciplinary approach combining different specialists
Tier III: $10,000\text{€} > x > 20,000\text{€}$	<ul style="list-style-type: none"> · Ireland · Spain · New Zealand 	<p><u>Social Inclusion</u></p> <ul style="list-style-type: none"> · Mainstreaming as predominant model · Social skills included in curriculum <p><u>Inclusive Education</u></p> <ul style="list-style-type: none"> · Personal plan for every student with SEN · Allowance to stay longer than 18yo in school
Tier III: $\leq 10,000\text{€}$	<ul style="list-style-type: none"> · Portugal 	-

Appendix 9 - Estimated distribution of SSEN per levels of education in public schools, in 2020/2021

Estimated distribution of SSEN per levels of education in public schools, in 2020/2021		
Level of Education	Number of SSEN in Public schools	% of total SSEN
Pre-School	3,559	5%
Basic School	63,083	81%
1o Cycle	21,259	27%
1st grade	2,217	3%
2nd grade	5,170	7%
3rd grade	6,331	8%
4th grade	7,542	10%
2o Cycle	17,414	22%
5th grade	8,402	11%
6th grade	9,012	12%
3o Cycle	24,410	31%
7th grade	8,943	11%
8th grade	7,937	10%
9th grade	7,529	10%
Secondary Education	11,627	15%
10th grade	5,193	7%
11th grade	3,685	5%
12th grade	2,748	4%
Total	78,268	100%

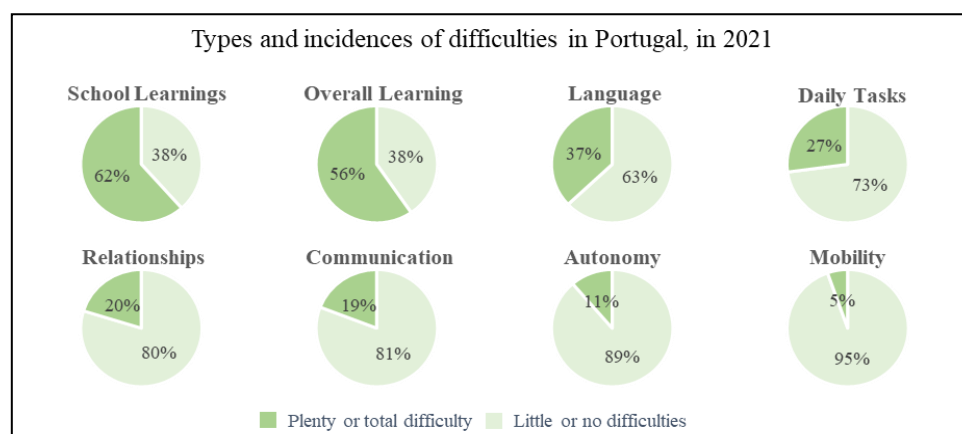
Appendix 10 - Estimated distribution of SSEN per NUTS II, in 2020/2021

Estimated distribution of SSEN per NUTS II, in 2020/2021			
NUTS II	Number SSEN	% of total SSEN	SSEN per Student Incidence
Lisboa	24,890	32%	5.20%
Norte	21,543	28%	4.10%
Centro	20,913	27%	6.70%
Alentejo	7,123	9%	6.90%
Algarve	3,799	5%	5.10%
Total	78,268	100%	-

Appendix 11 - Estimated distribution of SSEN per NUTS III, in 2020/2021

Estimated distribution of SSEN per NUTS III, in 2020/2021		
NUTS II (&III)	Number of SSEN	% of Respective Region
Norte	21,543	100%
Alto Minho	1,285	6%
Alto Tâmega	392	2%
A.M. Porto	10,716	50%
Ave	2,390	11%
Cávado	2,668	12%
Douro	977	5%
Tâmega e Sousa	2,567	12%
Terras de Trás-os-Montes	549	3%
Centro	20,913	100%
Beira Baixa	660	3%
Beiras e Serra da Estrela	1,675	8%
Médio Tejo	2,187	10%
Oeste	3,639	17%
Região de Aveiro	3,626	17%
Região de Coimbra	3,941	19%
Região de Leiria	2,808	13%
Viseu Dão Lafões	2,377	11%
A. M. Lisboa	24,890	100%
A.M. Lisboa	24,890	100%
Alentejo	7,123	100%
Alentejo Central	1,515	21%
Alentejo Litoral	920	13%
Alto Alentejo	1,010	14%
Baixo Alentejo	1,212	17%
Lezíria do Tejo	2,467	35%
Algarve	3,799	100%
Algarve	3,799	100%
Total	78,268	N/A

Appendix 12 – Types and Incidences of Difficulties in Portugal, in 2021



Legend: most predominant type of difficulty is school learnings.

Appendix 13 – Characterization of sample of the survey to families

Characterization of Sample of the Survey to Families		
Level of Education	Number of Respondents	% of Total
Pre-School	37	14%
Basic School	151	56%
1o Cycle	73	27%
2o Cycle	37	14%
3o Cycle	41	15%
Secondary Education	32	12%
Superior Education	7	3%
Other	9	3%
Does not study anymore	34	13%
Total	270	100%
School System	Number of Respondents	% of Total
Public	208	77%
Private	35	13%
Part public, part private	22	8%
Other	5	2%
Total	270	100%
Type of Disability	Number of Respondents	% of Total
Sensorial	51	19%
Mental	61	23%
Intellectual	180	67%
Physical	37	14%
Total	270	-
District (or Islands)	Number of Respondents	% of Total
Açores	3	1%
Aveiro	7	3%
Beja	4	1%
Braga	28	10%
Bragança	1	0%
Castelo Branco	6	2%
Coimbra	11	4%
Évora	5	2%
Faro	2	1%
Leiria	8	3%
Lisboa	83	31%
Madeira	19	7%
Portalegre	1	0%
Porto	23	9%
Santarém	4	1%
Setúbal	57	21%
Viana do Castelo	1	0%
Vila Real	3	1%
Viseu	4	1%
Total	270	100%

Appendix 14 – Survey to families: perception on teachers

Questions	Answers	Number of Respondents	% of Total
"Do you feel like there is an adequate number of SET?"	No	223	83%
	Don't Know	15	6%
	Yes	32	12%
	Total	270	100%
"Do you feel like, overall, teachers are properly capacitated to deal with SSEN?"	No	126	47%
	Just SET	110	41%
	Yes	34	13%
	Total	270	100%

Appendix 15 – Survey to families: perception regarding student's learnings

Questions	Answers	Number of Respondents	% of Total
"Do you feel like your relative is being properly qualified in school, preparing them for inclusion in the labor market?"	No	114	42%
	Partially	103	38%
	Yes	53	20%
	Total	270	100%
"Do you feel like your relative is being properly prepared for an autonomous life?"	No	73	27%
	Partially	126	47%
	Yes	71	26%
	Total	270	100%
"In what type of class do you feel like your relative would take the most out of?"	Full time special education class	24	9%
	Regular education class	16	6%
	Regular education class with specialized support out of class	38	14%
	Regular education class, accompanied by a SET	160	59%
	Other	32	12%
	Total	270	100%

Appendix 16 – Survey to families: perception regarding relative's happiness

Questions	Answers	Number of Respondents	% of Total
"Overall, do you feel like your relative is well integrated in the school environment?"	No	36	13%
	Partially	104	39%
	Yes	130	48%
	Total	270	100%
"Do you feel like the teaching methods and activities proposed by the school make your relative feel happy and accomplished?"	No	43	16%
	Partially	113	42%
	Yes	114	42%
	Total	270	100%

Appendix 17 – Survey to families: perception regarding level of family involvement

Questions	Answers	Number of Respondents	% of Total
"Do you feel like you are given the opportunity to be properly involved in your relative's education?"	No	20	7%
	Partially	105	39%
	It is not up to me to be involved in his/her education	8	3%
	Yes	137	51%
	Total	270	100%
"Do you believe there is transparency when it comes to your relative's education?"	No	33	12%
	Partial	129	48%
	Total transparency	108	40%
	Total	270	100%

Appendix 18 – Special Education Teachers by NUTS III

Norte	2,335
Alto Minho	195
Alto Tâmega	71
A.M Porto	1,041
Ave	262
Cávado	270
Douro	131
Tâmega e Sousa	267
Terras de Trás-os-Montes	98
Centro	2,142
Beira Baixa	78
Beiras e Serra da Estrela	209
Médio Tejo	235
Oeste	346
Região de Aveiro	334
Região de Coimbra	403
Região de Leiria	246
Viseu Dão Lafões	291
A.M. Lisboa	2,221
A.M Lisboa	2,221
Alentejo	778
Alentejo Central	192
Alentejo Litoral	86
Alto Alentejo	136
Baixo Alentejo	129
Lezíria do Tejo	235
Algarve	406
Algarve	406
Total	7,882

Appendix 19 – Gap between recruitment needs and expected teaching graduates

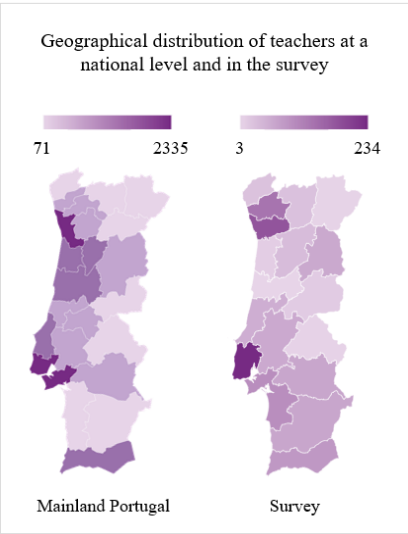
	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Recruitment Needs	3,050	5,683	8,478	11,708	15,034	18,782	22,537	26,488	30,401	34,508
Expected Graduates	1,597	3,194	4,791	6,388	7,985	9,582	11,179	12,776	14,373	15,970
Gap	48%	44%	43%	45%	47%	49%	50%	52%	53%	54%

Appendix 20 – Survey made to teachers: characterization of sample used.

Questions	Answers	Number of Respondents	Percentage of total	
"Which gender do you identify with?"	Female	994	84.7%	
	Male	177	15.1%	
	I would rather not answer	3	0.3%	
	Total	1174	100.0%	
"What age group do you belong to?"	18-24	3	0.3%	
	25-34	42	3.6%	
	35-44	211	18.0%	
	45-54	475	40.5%	
	55-64	408	34.8%	
	65 +	35	3.0%	
	Total	1174	100.0%	
"In which district or autonomous region do you work?"	Aveiro	12	1.0%	
	Beja	66	5.6%	
	Braga	133	11.3%	
	Bragança	5	0.4%	
	Castelo Branco	15	1.3%	
	Coimbra	3	0.3%	
	Évora	66	5.6%	
	Faro	85	7.2%	
	Guarda	62	5.3%	
	Leiria	54	4.6%	
	Lisboa	234	19.9%	
	Portalegre	10	0.9%	
	Porto	177	15.1%	
	Santarém	61	5.2%	
	Setúbal	98	8.3%	
	Viana do Castelo	28	2.4%	
	Vila Real	29	2.5%	
Viseu	36	3.1%		
Total	1174	100.00%		
"What education cycle do you work with?"*	Preschool	233	14.8%	
	1st Cycle	297	18.8%	
	2nd Cycle	257	16.3%	
	3rd Cycle	430	27.2%	
	Secondary	362	22.9%	
	Total	1579	100.0%	
"Do you currently work as a special education teacher?"	Yes - 910	166	14.1%	
	Yes - 920	4	0.3%	
	Yes - 930	2	0.2%	
	No	1002	85.3%	
	Total	1174	100.0%	
"Do you teach in a public or in a private school?"	Public	1002	85.3%	
	Private	129	11.0%	
	Public and Private	29	2.5%	
	Other	Professional School	2	0.2%
		IPSS	10	0.9%
		Blank	2	0.2%
Total	1174	100.0%		

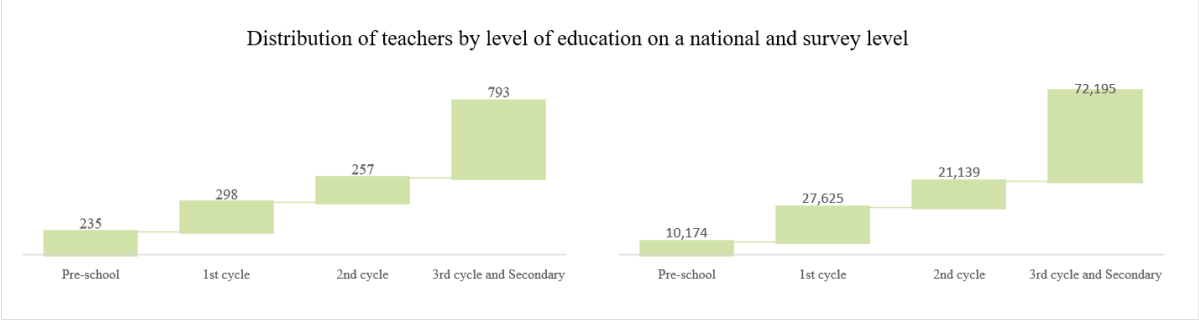
*Note: this number exceeds the total sample one since there might be an overlap, caused by teachers who work with different levels of education

Appendix 21 – Geographical distribution of teachers at a national level and in the survey



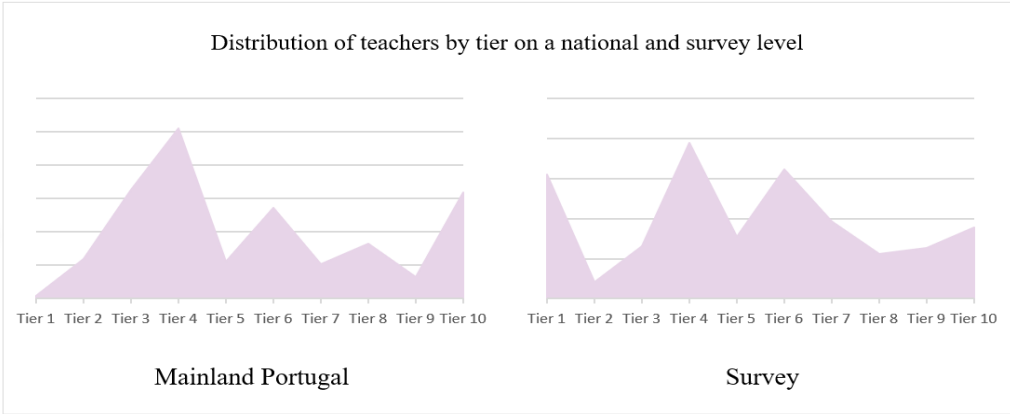
Legend: The distribution is homogeneous between national and survey figures.

Appendix 22 – Distribution of teachers by level of education on a national and survey level



Legend: The third cycle and secondary school are the levels of education with the most SET.

Appendix 23 - Distribution of teachers by tier on a national and survey level



Legend: The tiers with the highest number of teachers are the 4th and 6th.

Appendix 24 – Survey made to teachers: question block aimed at evaluating training within special education teachers mostly

Questions	Answers	Number of Respondents	Percentage of total
Do you know that you can meet the training requirement for career advancement through a specialized course (min 250h) in special education?	Yes	453	39%
	No	365	31%
	Blank	356	30%
	Total	1174	100%
During your specialization course in special education, did you continue working? (Only for SET)	Yes	152	88%
	No	7	4%
	Blank	13	8%
	Total	172	100%
Did you have any benefits while working? (To those who answered "Yes" to the previous question)	Yes, Student Worker Bylaws	18	12%
	No	134	88%
	Blank	0	0
	Total	152	100%
Which option best fits your reality? (To those who answered "No")	Sabbatical Leave	1	14%
	Unemployment	3	43%
	Blank	3	43%
	Total	7	100%

Appendix 25 – Average age and length of service of teachers by grade in mainland Portugal in the 2020/2021 school year

	Years expected in each tier	Age	Complete years of service
Tier 1	4	45.4	15.7
Tier 2	4	43.6	17.3
Tier 3	4	45.4	20.5
Tier 4	4	49.9	25.2
Tier 5	2	52.4	28.2
Tier 6	4	55	31
Tier 7	4	56.2	32.7
Tier 8	4	57.5	34.2
Tier 9	4	59.6	36.6
Tier 10	-	60.7	38.6

Appendix 26 – Survey made to teachers: question block aimed at evaluating Career Progression within Public School teachers

Questions	Answers	Number of Respondents	Percentage of total	
"What tier are you currently in?"	Tier 1	149	15%	
	Tier 2	19	2%	
	Tier 3	60	6%	
	Tier 4	191	19%	
	Tier 5	76	8%	
	Tier 6	159	16%	
	Tier 7	95	9%	
	Tier 8	53	5%	
	Tier 9	63	6%	
	Tier 10	88	9%	
	Blank	49	5%	
	Total	1002	100%	
"How many years of experience do you have?"	0-2	21	2%	
	3-5	22	2%	
	6-10	33	3%	
	11-20	150	15%	
	21-30	380	38%	
	+30	396	40%	
	Blank	0	0	
	Total	1002	100%	
"How do you rate compliance with the requirements for career progression?"	Poor Assessment	Unfair Process	565	56%
		Difficult to Comply	125	12%
		Dubious Information	42	4%
	Good Assessment	Easy to Comply	35	3%
		Fair Process	2	0%
		Blank	233	23%
	Total	1002	100%	
"Have you always progressed through the tiers in your career?"	Yes	394	39%	
	No	454	45%	
	Blank	154	15%	
	Total	1002	100%	

Appendix 27 – Survey made to teachers: cross analysis regarding Career Progression within Public School teachers

Crossed Questions	Answers	Always moved up	Hasn't always moved up	Total that move up
"Have you always progressed through the tiers in your career?" + "What tier are you currently in?"	Tier 1	27	84	5%
	Tier 2	6	8	1%
	Tier 3	24	22	4%
	Tier 4	71	86	12%
	Tier 5	31	34	5%
	Tier 6	75	63	13%
	Tier 7	46	38	8%
	Tier 8	25	24	4%
	Tier 9	40	14	7%
	Tier 10	49	32	8%
		Blank	203	34%
		Total	1002	100%

Appendix 28 – Survey made to teachers: question block aimed at evaluating the lack of resources.

Questions	Answers	Number of Respondents	Percentage of total	
"How do you perceive the amount of students with SEN that you are responsible for?"	Adequate number of students	436	50%	
	Excessive number of students - I am responsible for too many SSEN	386	44%	
	Insufficient number of students - I have space/time to teach more SSEN	49	6%	
	(Blank)	1	0%	
	Total	872	100%	
	Public school SET	Adequate number of students	56	35%
		Excessive number of students - I am responsible for too many SSEN	102	64%
		Insufficient number of students - I have space/time to teach more SSEN	1	1%
		Total	159	100%

Appendix 29 – Survey made to teachers: question block aimed at evaluating the system effectiveness

Questions	Answers	Number of Respondents	Percentage of total
"How would you classify the current system's response to the needs of SSEN?"	0	103	9.99%
	1	260	25.22%
	2	273	26.48%
	3	295	28.61%
	4	70	6.79%
	5	30	2.91%
	Total	1031	100%
	Average	2.06	-
"Do you consider that is created the space for an effective interaction between the intervenients (parents, teachers, medica team, etc.) of the SSEN life?"	No	624	60.52%
	Yes	407	39.48%
	Total	1031	100%
"Do you feel that SSEN leave their cycle properly qualified, considering their reality?"	No	822	79.73%
	I never had a SSEN	12	1.16%
	Yes	197	19.11%
	Total	1031	100%

Appendix 30 – Regular Teachers by NUTS III and respective weights

NUTS II (&III)	No. Regular Teachers in the Public system	Weight
Norte	44 477	36,8%
Alto Minho	3 014	2,5%
Alto Tâmega	1 262	1,0%
A.M Porto	19 913	16,5%
Ave	4 940	4,1%
Cávado	5 347	4,4%
Douro	2 819	2,3%
Tâmega e Sousa	5 532	4,6%
Terras de Trás-os-Montes	1 650	1,4%

Centro	27 494	22,8%
Beira Baixa	969	0,8%
Beirras e Serra da Estrela	2 743	2,3%
Médio Tejo	2 876	2,4%
Oeste	4 184	3,5%
Região de Aveiro	4 416	3,7%
Região de Coimbra	5 165	4,3%
Região de Leiria	3 296	2,7%
Viseu Dão Lafões	3 845	3,2%
A.M. Lisboa	32 426	26,8%
A.M Lisboa	32 426	26,8%
Alentejo	9 809	8,1%
Alentejo Central	2 131	1,8%
Alentejo Litoral	1 178	1,0%
Alto Alentejo	1 602	1,3%
Baixo Alentejo	1 767	1,5%
Lezíria do Tejo	3 131	2,6%
Algarve	6 636	5,5%
Algarve	6 636	5,5%
Total	120 842	100,0%

Appendix 31 – Survey made to teachers: question block aimed at evaluating the qualifications of regular teachers

Questions	Answers	Number of Respondents	Percentage of total
"Do you feel your base training gave you the necessary competencies to deal with SSEN?" (Only for regular teachers)	No	761	87%
	Yes	111	13%
	Total	872	100%
Have you done any extra training during your career to develop educational skills to deal with SSEN? (Only for regular teachers)	No	355	41%
	Yes	517	59%
	Total	872	100%
"Do you feel that that training gave you the skills you were looking for to deal with SSEN?" (Only for regular teachers who answers "Yes" to the previous question)	No	237	46%
	Yes	280	54%
	Total	517	100%
"Would you be interested in specializing more in the inclusion of SSEN?" (Only for regular teachers)	No	464	53%
	Yes	408	47%
	Total	872	100%
"Why have you not done it yet?" (To those who answered "Yes" to the previous question)	Personal reason	61	8%
	I am not informed	28	4%
	There are no incentives to training (example: workload reduction)	189	26%
	I do not see monetary incentives in doing it	71	10%
	I do not see career progression incentives in doing it	86	12%
	I do not have time (professional) to dedicate to a new training	115	16%
	I do not have time (personal) to dedicate to a new training	112	15%
	I will do it in a close future	27	4%
	Other	43	6%
	Total	732	100%
"Why?" (To those who answered "No" to the "Would you be interested in specializing more in the inclusion of SSEN?" question)	Personal reason	104	13%
	I am not informed	8	1%
	There are no incentives to training (example: workload reduction)	159	20%
	I do not see monetary incentives in doing it	68	9%
	I do not see career progression incentives in doing it	89	11%
	I do not have time (professional) to dedicate to a new training	124	16%
	I do not have time (personal) to dedicate to a new training	99	12%
	I feel like my specialization is enough	48	6%
	Other	95	12%
	Total	794	100%

Appendix 32 - Number of students with SEN per SET per level of education

Number of SSEN per SET per Level of Education (2020/21)			
	Supply	Demand	Ratio
Pre-school	599	3,559	6
1st Cycle	1,660	21,259	13
2nd Cycle	1,281	17,414	14
3rd Cycle & Secondary	4,342	36,037	8
Total	7,882	78,268	10

Appendix 33 - Number of students with SEN per SET per NUT II and III

Number of SSEN per SET per NUT II and III (2020/21)			
NUTS II (&III)	Number of SSEN	Number of SET	Ratio
Norte	21,543	2,335	9.2
Alto Minho	1,285	195	6.6
Alto Tâmega	392	71	5.5
A.M. Porto	10,716	1,041	10.3
Ave	2,390	262	9.1
Cávado	2,668	270	9.9
Douro	977	131	7.5
Tâmega e Sousa	2,567	267	9.6
Terras de Trás-os-Montes	549	98	5.6
Centro	20,913	2,142	9.8
Beira Baixa	660	78	8.5
Beiras e Serra da Estrela	1,675	209	8.0
Médio Tejo	2,187	235	9.3
Oeste	3,639	346	10.5
Região de Aveiro	3,626	334	10.9
Região de Coimbra	3,941	403	9.8
Região de Leiria	2,808	246	11.4
Viseu Dão Lafões	2,377	291	8.2
A. M. Lisboa	24,890	2,221	11.2
A.M. Lisboa	24,890	2,221	11.2
Alentejo	7,123	778	9.2
Alentejo Central	1,515	192	7.9
Alentejo Litoral	920	86	10.7
Alto Alentejo	1,010	136	7.4
Baixo Alentejo	1,212	129	9.4
Lezíria do Tejo	2,467	235	10.5
Algarve	3,799	406	9.4
Algarve	3,799	406	9.4
Total	78,268	7,882	10

Appendix 34 – Forecasted number of SSEN per SET

Forecasted Number of SSEN and SET								
	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
SSEN	74,590	73,559	72,637	71,775	71,029	70,359	69,788	69,367
SET	7,512	7,233	6,955	6,677	6,398	6,120	5,842	5,564

Appendix 35 – Critical areas and recruitment needs per NUTS III region

Critical areas and Recruitment needs per NUTS III region							
NUTS II (III)	Realistic scenario - 2030/31				Business-usual- 2030/31		Gap
	No. SSEN	No SET	Ratio	No SET if 9.23 ratio	No SET		
Norte	19,093	2,225	9	2068	1648	420	
Alto Minho	1,139	186	6	123	138	-14	
Alto Tâmega	348	68	5	38	50	-12	
A.M Porto	9,497	992	10	1029	735	294	
Ave	2,118	250	8	229	185	44	
Cávado	2,364	257	9	256	191	65	
Douro	866	125	7	94	92	1	
Tâmega e Sousa	2,275	254	9	246	188	58	
Terras de Trás-os-Montes	487	93	5	53	69	-16	
Centro	18,535	2,041	9	2007	1512	495	
Beira Baixa	585	74	8	63	55	8	
Beiras e Serra da Estrela	1,485	199	7	161	148	13	
Médio Tejo	1,938	224	9	210	166	44	
Oeste	3,225	330	10	349	244	105	
Região de Aveiro	3,213	318	10	348	236	112	
Região de Coimbra	3,493	384	9	378	284	94	
Região de Leiria	2,489	234	11	270	174	96	
Viseu Dão Lafões	2,106	277	8	228	205	23	
A.M. Lisboa	22,059	2,117	10	2389	1568	821	
A.M Lisboa	22,059	2,117	10	2389	1568	821	
Alentejo	6,313	741	9	684	549	135	
Alentejo Central	1,343	183	7	145	136	10	
Alentejo Litoral	816	82	10	88	61	28	
Alto Alentejo	895	130	7	97	96	1	
Baixo Alentejo	1,074	123	9	116	91	25	
Lezíria do Tejo	2,186	224	10	237	166	71	
Algarve	3,367	387	9	365	287	78	
Algarve	3,367	387	9	365	287	78	
Total	69,367	7512	9.23	15024	5563	1949	

Appendix 36 – Cumulative number of SET required by 2030/2031

Scenario	Benchmark country	Ratio	Cumulative number extra SET	Yearly number of extra SET
Realistic	Portugal	9.23	1948	278
Optimistic	Wales	7	4790	684
Ambitious	Germany	5	7525	1075

Appendix 37 – Sample price of Post Graduate SEN courses and average of Public and Private institutions’ values

Sample price of Post Graduate SEN courses	
	Price
Public institutions	
Faculdade de Motricidade Humana	1,000 €
Instituto Superior de Educação e Ciências	1,100 €
Instituto Politécnico de Setúbal	1,300 €
Average	1,133 €
Private institutions	
Escola Superior de Educação Paula Frassinetti	1,750 €
ISCIA	2,000 €
Instituto Europeu de Estudos Superiores	1,590 €
ISLA - Santarem	1,445 €
Average	1,696 €

Appendix 38 – Student distribution across Public and Private institutions and respective total weights

Number of enrolled students in SEN Master Courses per Public and Private institutions and respective weights in 2021/22		
Institutions	People enrolled	Weight
Public institutions		
Instituto Politécnico de Coimbra - Escola Superior de Educação de Coimbra	22	
Instituto Politécnico de Lisboa - Escola Superior de Educação de Lisboa	41	
Instituto Politécnico de Portalegre - Escola Superior de Educação e Ciências Sociais	17	
Universidade de Coimbra - Faculdade de Psicologia e de Ciências da Educação	n.e.	
Universidade do Minho	40	
Instituto Politécnico de Leiria - Escola Superior de Educação e Ciências Sociais	31	
Instituto Politécnico de Beja - Escola Superior de Educação	35	
Instituto Politécnico de Castelo Branco - Escola Superior de Educação de Castelo Branco	13	
Universidade de Évora - Escola de Ciências Sociais	1	
Universidade do Algarve - Escola Superior de Educação e Comunicação	24	
Instituto Politécnico de Viseu - Escola Superior de Educação de Viseu	39	
Instituto Politécnico do Porto - Escola Superior de Educação	44	
Total enrolled in public institutions	307	83%
Private institutions		
Universidade Católica Portuguesa - Faculdade de Filosofia e Ciências Sociais	13	
Universidade Fernando Pessoa	18	
Universidade Lusófona - Centro Universitário Lusófona - Lisboa	12	
Escola Superior de Educação de Fafe	11	
Escola Superior de Educação de João de Deus	n.e.	
ISCE - Instituto Superior de Lisboa e Vale do Tejo	9	
Total enrolled in private institutions	63	17%

Appendix 39 – Costs associated with hiring an extra teacher per rank

Breakdown of costs associated with hiring an extra teacher per rank					
Career rank	Gross salary	TSU	Meal allowance	Monthly cost per person	Yearly cost per person
1st	1,589 €	433 €	114 €	2,081 €	29,131 €
2nd	1,782 €	486 €	114 €	2,320 €	32,479 €
3rd	1,939 €	528 €	114 €	2,514 €	35,190 €
4th	2,555 €	696 €	114 €	3,277 €	45,873 €
5th	2,807 €	765 €	114 €	3,588 €	50,228 €
6th	3,192 €	870 €	114 €	4,064 €	56,896 €
7th	3,473 €	946 €	114 €	4,412 €	61,775 €

Appendix 40 – Realistic scenario recruitment needs and attributed scholarships

Realistic recruitment needs and attributed scholarships									
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	Total	
Target increase in number of SET	278	278	278	278	278	278	278	1948	
SET on waitlist	310	32	0	0	0	0	0	n.a.	
Needs	0	247	278	278	278	278	278	1637	
Scholarships	0	247	278	278	278	278	278	1637	

Appendix 41 – Realistic scenario yearly costs

Realistic Scenario yearly costs											
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	Total
Scholarships	- €	75,770 €	161,286 €	238,835 €	315,358 €	324,079 €	324,079 €	238,563 €	153,047 €	76,524 €	1,907,541 €
Extra wages	8,106,796 €	16,213,593 €	24,320,389 €	32,427,185 €	41,465,746 €	50,504,307 €	59,542,868 €	60,474,632 €	62,160,689 €	63,846,746 €	419,062,950 €
Total cost	8,106,796 €	16,289,363 €	24,481,675 €	32,666,020 €	41,781,104 €	50,828,386 €	59,866,946 €	60,713,195 €	62,313,736 €	63,923,269 €	420,970,490 €

Appendix 42 – Optimistic scenario recruitment needs and attributed scholarships

Optimistic recruitment needs and attributed scholarships									
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	Total	
Target increase in number of SET	684	684	684	684	684	684	684	4790	
SET on waitlist	310	0	0	0	0	0	0	n.a.	
Needs	374	684	684	684	684	684	684	4480	
Adjusted increase in SET	310	747	747	747	747	747	747	4790	
Scholarships	0	747	747	747	747	747	747	4480	

Appendix 43 – Optimistic scenario yearly costs

Optimistic Scenario yearly costs											
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	Total
Scholarships	- €	229,447 €	458,894 €	664,214 €	869,534 €	869,534 €	869,534 €	640,087 €	410,640 €	205,320 €	5,217,205 €
Extra wages	9,030,671 €	30,781,966 €	52,533,261 €	74,284,556 €	97,073,801 €	121,325,107 €	145,576,413 €	148,076,425 €	151,416,690 €	155,940,539 €	986,039,430 €
Total cost	9,030,671 €	31,011,413 €	52,992,155 €	74,948,770 €	97,943,336 €	122,194,642 €	146,445,948 €	148,716,512 €	151,827,330 €	156,145,859 €	991,256,635 €

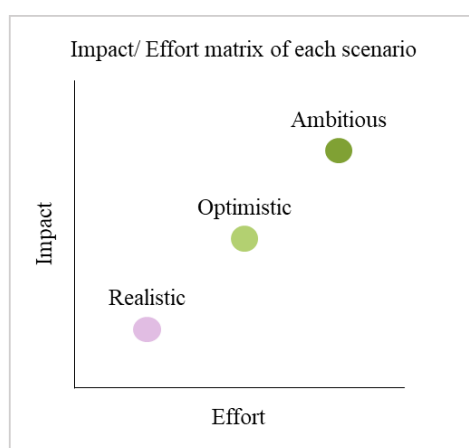
Appendix 44 – Ambitious scenario recruitment needs and attributed scholarships

Ambitious recruitment needs and attributed scholarships								
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	Total
Target increase in number of SET	1075	1075	1075	1075	1075	1075	1075	7525
SET on waitlist	310	0	0	0	0	0	0	n.a.
Needs	765	1075	1075	1075	1075	1075	1075	7215
Adjusted increase in SET	310	1203	1203	1203	1203	1203	1203	7525
Scholarships	0	1203	1203	1203	1203	1203	1203	7215

Appendix 45 – Ambitious scenario yearly costs

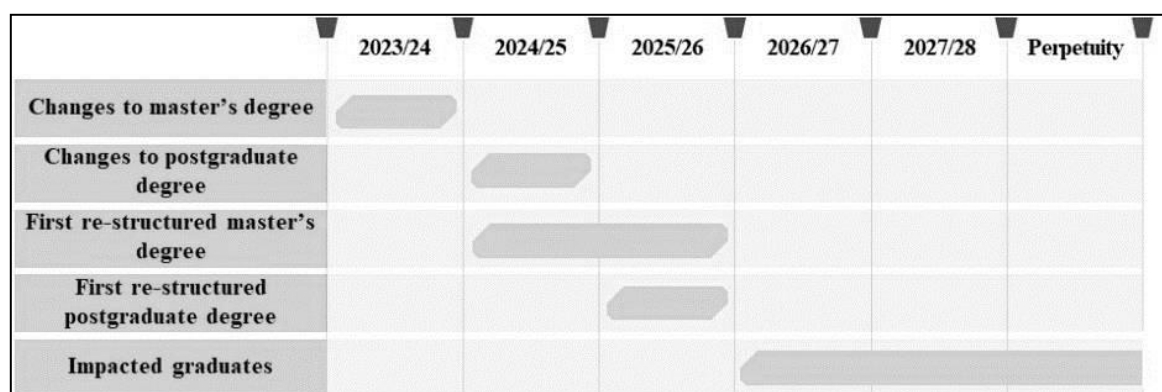
Optimistic Scenario yearly costs											
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	Total
Scholarships	- €	369,523 €	739,045 €	1,069,711 €	1,400,377 €	1,400,377 €	1,400,377 €	1,030,854 €	661,332 €	330,666 €	8,402,263 €
Extra wages	9,030,671 €	44,060,937 €	79,091,203 €	114,121,469 €	150,189,686 €	189,246,198 €	228,302,710 €	232,328,956 €	237,195,456 €	244,481,073 €	1,528,048,360 €
Total cost	9,030,671 €	44,430,460 €	79,830,249 €	115,191,180 €	151,590,063 €	190,646,575 €	229,703,087 €	233,359,810 €	237,856,788 €	244,811,739 €	1,536,450,623 €

Appendix 46 – Effort-Implementation Matrix



Legend: level of impact correlated with the effort needed, with the realistic scenario being the lowest on both

Appendix 47– Gantt Chart: solution 2 implementation timeline



Appendix 48 - Teachers taking the course, per NUTS III

Age groups	% of Total Teachers 2020/2021	Number of Teachers Taking the Course
<30	2%	0
30-39	15%	0
40-49	37%	0
50-59	35%	0
>60	12%	0
Total 2020/2021	100%	120,842
New teachers 2021-2024	-	8,478
Considered faculty in 2023/2024	-	129,320

Appendix 49 – Teachers taking the course, per NUTS II (& III)

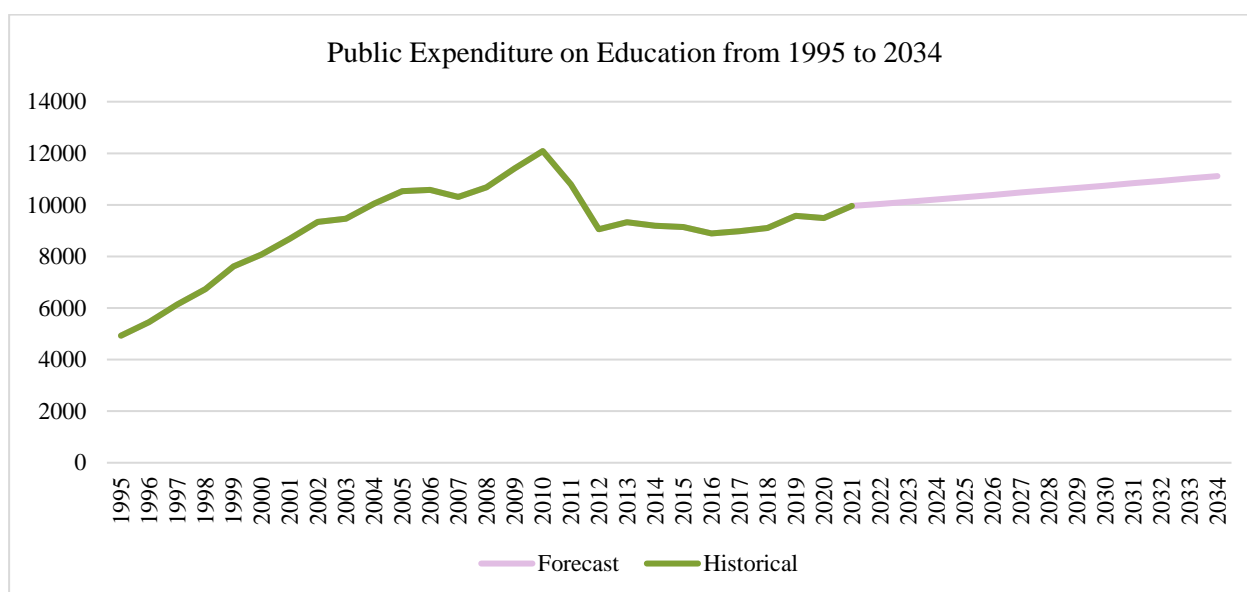
Teachers taking the course, per NUTS II (& III)		
NUTS II (&III)	Number of Teachers Taking the Course	In % of Total Course Takers
Norte	17 930	37%
Alto Minho	1 215	2%
Alto Tâmega	509	1%
A.M. Porto	8 027	16%
Ave	1 991	4%
Cávado	2 155	4%
Douro	1 136	2%
Tâmega e Sousa	2 230	5%
Terras de Trás-os-Montes	665	1%
Centro	11 083	23%
Beira Baixa	391	1%
Beiras e Serra da Estrela	1 106	2%
Médio Tejo	1 159	2%
Oeste	1 687	3%
Região de Aveiro	1 780	4%
Região de Coimbra	2 082	4%
Região de Leiria	1 329	3%
Viseu Dão Lafões	1 550	3%
A. M. Lisboa	13 072	27%
A.M. Lisboa	13 072	27%

Alentejo	3 954	8%
Alentejo Central	859	2%
Alentejo Litoral	475	1%
Alto Alentejo	646	1%
Baixo Alentejo	712	1%
Lezíria do Tejo	1 262	3%
Algarve	2 675	5%
Algarve	2 675	5%
Total	48 714	100%

Appendix 50 – Benchmark for course price

Benchmark for course price			
Entity	Price (€)	Duration (h)	Price/25h
Traininghouse	84	40	52.5
Edkid	90	30	75
Evolui	55	12	114.58
I9Project	80	25	80
Dar+	100	25	100
Sinerconsult	198	21	235.71

Appendix 51 – Public expenditure on education from 1995 to 2034



Legend: Since 2014, the year marking the end of the external intervention (Troika) in Portugal, the expenditure on education has been gradually recovering.

Appendix 52 – Number of SSEN and special education expenditure from 2020/2021 to 2033/2034

Number of SSEN and special education expenditure from 2020/21 to 2033/34														
Years	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Number of SSEN	78,268	76,909	75,769	74,590	73,559	72,637	71,774	71,029	70,359	69,788	69,367	69,036	68,793	68,638
<i>growth rate</i>		-1.74%	-1.48%	-1.56%	-1.38%	-1.25%	-1.19%	-1.04%	-0.94%	-0.81%	-0.60%	-0.48%	-0.35%	-0.23%
Special Education Expenditure (in millions)	301.25 €	303.82 €	306.41 €	309.01 €	311.65 €	314.30 €	316.98 €	319.67 €	322.40 €	325.14 €	327.91 €	330.70 €	333.52 €	336.36 €

Appendix 53 – Investment in special education per SSEN

Investment in Special Education per Student with SEN											
Years	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	
Business-as-usual Scenario	4,237 €	4,327 €	4,416 €	4,501 €	4,582 €	4,659 €	4,727 €	4,790 €	4,848 €	4,900 €	
Solution 2 Cost	6 €	8 €	8 €	8 €	8 €	9 €	50 €				
Solution 1 Cost w/ Realistic Scenario	110 €	224 €	341 €	460 €	594 €	728 €	863 €	879 €	906 €	931 €	
Solution 1 Extra Cost - Optimistic Scenario	123 €	427 €	738 €	1,055 €	1,392 €	1,751 €	2,111 €	2,154 €	2,207 €	2,275 €	
Solution 1 Cost w/ Ambitious Scenario	123 €	612 €	1,112 €	1,622 €	2,155 €	2,732 €	3,311 €	3,380 €	3,458 €	3,567 €	
Total Cost w/ Realistic	4,353 €	4,560 €	4,766 €	4,969 €	5,184 €	5,396 €	5,640 €	5,670 €	5,754 €	5,832 €	
Total Cost w/ Optimistic	4,366 €	4,762 €	5,163 €	5,564 €	5,983 €	6,419 €	6,888 €	6,944 €	7,055 €	7,175 €	
Total Cost w/ Ambitious	4,366 €	4,947 €	5,537 €	6,131 €	6,745 €	7,399 €	8,089 €	8,171 €	8,306 €	8,467 €	

Appendix 54 – Total investment in education per student with SEN

Total Investment per Student with SEN										
Years	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Investment in Standard Education	6,607 €	6,747 €	6,887 €	7,018 €	7,145 €	7,265 €	7,371 €	7,470 €	7,560 €	7,642 €
Total Investment w/ Business-as-usual Scenario	10,843 €	11,074 €	11,303 €	11,519 €	11,727 €	11,924 €	12,099 €	12,260 €	12,408 €	12,542 €
Total Investment w/ Realistic Scenario	10,960 €	11,307 €	11,652 €	11,987 €	12,330 €	12,661 €	13,012 €	13,140 €	13,314 €	13,473 €
Investment in Special Education w/ Optimistic Scenario	10,972 €	11,510 €	12,050 €	12,582 €	13,128 €	13,684 €	14,260 €	14,414 €	14,615 €	14,817 €
Investment in Special Education w/ Ambitious Scenario	10,972 €	11,694 €	12,424 €	13,149 €	13,890 €	14,664 €	15,460 €	15,640 €	15,866 €	16,109 €