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Exploration of the Action-oriented Approach for Second Language Acquisition in Students with Special Educational Needs: A Scoping Review

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Declaration Page

DECLARATION: By typing my name in the signature field, I hereby declare that this assignment is my own original work.

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DATE: September 10, 2023.

Abstract

Non-scientific assumptions have led to the mistaken belief that individuals with limited cognitive function cannot benefit from, or even acquire, a second language. Still, recent advances in neuroscience support the idea that they can indeed develop new literacy abilities without detriment to the first language. In this context, the current research study aims to explore the use of Action-oriented Approach to support the acquisition of a second language in young population with Special Educational Needs, for which a scoping review approach was selected. Potential implications of the study include establishing a new basis for the development of tailored curriculum programs and practices that better address the special educational needs of individuals with cognitive deficits.

Acknowledgements

To my husband...

Thank you, my loved husband, for all your unconditional love and support. Thanks for holding my back with your patience and kindness. Thanks for sharing with me the generosity of your time, and for being my critical advisor. Nothing of this would have been possible without you.

I would like to express my sincere gratitude to my supervisor Dr. Catriona O'Toole for her support in every moment that I needed her valuable advice to conduct my study.

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Relevant Nomenclature

ADD	Attention Deficit Disorder
ADHD	Attention Deficit Hyperactivity Disorder
ALM	Audio-Lingual Method
AoA	Action-oriented Approach
ASD	Autistic spectrum disorder
CEFR	Common European Framework of Reference for Languages
CI	Collective Intelligence
CLT	Communicative Language Teaching
CoPs	Communities of Practice
DS	Down Syndrome
DSM	Diagnostic and Statistical Manual of Mental Disorders
FAST	Faceted Application of Subject Terminology
FLL	Foreign Language Learning
GTM	Grammar Translation Method
HI	Hearing Impairment
IDEA	Individuals with Disabilities Education Act 2004
L1	First Language
L2	Second Language
MeSH	Medical Subject Headings
MSI	Multi-Sensory Impairment
PBL	Project-Based Learning
PD	Physical Disability
PICO	Population-Intervention-Comparator-Outcome (model)
PMLD	Profound and Multiple Learning Difficulties
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
PRISMA-ScR	PRISMA extension for Scoping Reviews
SEN	Special Educational Needs

SGAV	Structo-Global Audio-Visual (method)
SLA	Second Language Acquisition
SLCN	Speech, Language, and Communication Needs
SLD	Severe learning difficulties
SMD	Social Model of Disability
SpLD	Specific Learning Difficulty
TBL	Task-Based Learning
TBLT	Task-based Language Teaching
TPR	Total Physical Response (method)
VI	Visual Impairment

1 Introduction

1.1 Project Overview

1.1.1 Motivation

A preliminary set of subject explorations and early studies that I performed during a course of my Master of Education program[1] at the Manynooth University on the prevalence of bilingualism in the population of students with Down Syndrome (DS), showed that most of them are not formally considered in foreign language lessons of mainstream classrooms. This motivated me to design and work on a research proposal aligned with the European Disability Strategy[2] such that it could constitute an opportunity to contribute to the process of inclusion of individuals with Special Educational Needs (SEN) in the school environment. From the beginning, I envisioned SEN students substantially benefiting from the outcomes of my research study, for instance, by using more adequate approaches to develop language skills that could be directly applied in their communities, and through which they are expected to increase their potential to participate more actively in their immediate local communities and also in the global village.

As a professional in the education area for more than 8 years, with 3 years of experience in teaching practice with special needs students (cerebral palsy), more than 3 years of experience teaching Spanish as second language in Ireland, and with experience in the syllabus framework for the teaching and evaluation of modern languages in the Irish junior and leav-

[1] Namely, ED604[A] — Introduction to Research Methods in Education (2021-22), ED618[A] — Contextualising & Communicating Your Research (2021-22), and LW664[A] — Education Litigation (2021-22).

[2] `https://knowledge.epr.equass.be/article/533-european-disability-strategy-2021-2030`

ing certificate, I know from first-hand the importance of inclusion in schools, and I want to contribute to the study of Second Language Acquisition (SLA) for SEN students, especially since there is no scientific evidence supporting the idea that they cannot benefit from learning a second language (L2). In particular, the use of the Action-oriented Approach (AoA) to teach a foreign language to SEN students presented itself to me as a worth-exploring approach to their language education because it is a well-supported vision of language teaching approach grounded in theories such as agency, action, community of practice, collective intelligence, complex dynamic systems, ecological perspectives, neuroscience, sociology, psychology, cognitive/socio-constructivist/cultural education, among others. The AoA, rather than seeing students as empty vessels that need to be filled, sees learners as users of the language who can act and enhance their agency in environments where the participation and the mediation of others are fundamental, not only to accomplish the planned goals in the target language within the classroom but also to apply the acquired skills in the world. Other benefits of the AoA include the enhancement of cognitive processes such as attention and memory, and the leveraging of socio-emotional aspects such as the recognition of identity, and the recognition of others' values and principles for life. Additionally, this approach contributes to the elaboration of classroom activities that seek the eradication of segregation and exclusion of neurodivergent students in school settings, with such environments being nothing else than small versions of our pluralistic and diverse society. Then, because of all the theories that support the AoA as a new vision in education to learn foreign languages, and the socio-constructivist approach that I (the researcher) follow in my professional practice, I decided to select the AoA as the target methodological framework to be explored in the present study for the acquisition of foreign languages in SEN students.

Therefore, and among others, I believe that the current research study constitutes a great opportunity to contribute to the process of inclusion of SEN population in L2 acquisition activities offered by the educational ecosystem.

1.1.2 Preliminary background of the study

With the purpose of giving some context on the selected research subject, namely L2 acquisition in SEN individuals using AoA-based and AoA-aligned learning approaches, I provide below a brief discussion of an early collection of selected scientific documents that were gathered and analysed in an assignment task for the module *ED604 - INTRODUCTION TO RESEARCH METHODS* (Perez-Gonzalez 2022) in the context of AoA-based L2 acquisition for students with Down Syndrome (DS). Such references were primarily chosen because of the relevance of their findings, conclusions, and their affinities to the target subject, such as language and communication development of individuals with DS (but not necessary for a second language). However, given the identified non-negligible limitations reported in those studies (including small sample populations, among the most frequent ones), it is also important to analyse them from the perspective of scope or significance. All the explored scientific references were assessed using "organising themes" that facilitated the grouping and analysis of the gathered information.

Some related work

Acquisition of a second language (L2 acquisition) in children with DS is a sensitive and relatively understudied topic. It has hardly grown worldwide attention, especially because of the assumption that acquiring a second language could severely affect the communication skills and proficiency (e.g., verbalisation/pronunciation and grammar performance) in the first language of DS individuals, but no scientific evidence has been found to supports such negative notions. Over the last 10 years, and thanks to advances in neuroscience, more studies about bilingualism in DS populations have been carried out, including studies developed in the UK, Canada, Ireland, the US, Greece, and Iran (Abbasian and Ebrahimi 2020; Martin et al. 2021; Piazzoli and Kubiak 2019; Ward and Sanoudaki 2021; Katsarou and Andreou 2021). As the main conclusion, it was found that all the researchers' findings do support with scientific evidence the fact that students with DS can develop new literacy abilities and become bilingual or even multilingual with no detriment to their first language.

Concerning the purpose of these studies, the extent is diverse. For instance, the aim of a

Canadian study (Martin et al. 2021) was the analysis of the experiences and outcomes of a student with DS registered in a foreign language immersion program involving French and English. In the same line of research, the aim of an Iranian study (Abbasian and Ebrahimi 2020) was the assessment of the teacher's perceptions in the evaluation of language proficiency of pupils from a DS English Foreign Language program. Other studies in the UK and the US were focused on examining the language dominance of bilingual children with and without DS with respect to monolingual individuals (Ward and Sanoudaki 2021). In the case of a study involving Greek (Katsarou and Andreou 2021), the aim was to examine productive and receptive abilities in the first language of a group of 16 children with DS, 8 of which were bilinguals and the other 8 monolinguals. In an Irish study conducted by Piazzoli and Kubiak (2019), the purpose was wider than the previously cited studies in the field, with the focus put on the role of performative pedagogy for L2 acquisition in pupils with limited cognitive function. Therein, the researchers explored the acknowledgement of the body as a whole "experiential being" in a learning approach that combined the mental and physical qualities of the individuals to support the acquisition of a second language in a group that integrated an English-Italian program.

Limitations of the related studies

While new studies of diverse extents have been recently carried out in the context of L2 acquisition in DS population, it is important to highlight their limitations. Different studies reported that the small size of the selected sample prevented the authors from drawing conclusive inferences, and thus the generalisability of the outcome was diminished (Martin et al. 2021). As a remark, the small sample does not seem to be the result of an unsuitable selection process or denied consent, but due to a low proportion of individuals with developmental disabilities attending foreign language programs. Researchers have also stated that time is another common limitation since i) individuals with DS usually have slower learning rates and ii) L2 acquisition using traditional approaches results in a long-term process, which causes short research projects (such as those developed during a 1-year master program) to be generally insufficient to observe significant progress.

In some other cases, the unavailability of proficiency tests for bilingual children with special needs has been reported, which resulted in circumvention actions such as the use of tests designed for monolinguals (Martin et al. 2021). This, even though possible, can easily lead to misdiagnosis or prevent the capture of potentially relevant features in the population under study (namely, DS students). Similarly, in some cases the authors had to use old versions of intelligence tests (Abbasian and Ebrahimi 2020), which has similar consequences as in the case of using inadequate tests since only up-to-date tests incorporate the latest research discoveries that can lead to more accurate diagnosis.

1.1.3 Relevance of the present study

Although preliminary analysed references and many others endorse the idea that individuals with DS (and other conditions that cause diverse levels of cognitive impairment) can acquire new languages with no harm to their first language (particularly Mally (2019)), several research studies have identified three key factors that are imperative to maximise the effectiveness and efficiency of the educational practices: i) the need of training in special education for families, teachers, and community; ii) the incorporation of all the involved parties' feedback in the design of tailored assessment tests and tailored curriculum programs; and iii) the need of more comprehensive methodologies, practices, and policies that include the specials needs of individuals with limited cognitive function and can help them learn new languages. It is in the scope of the latter factor that the current research study was proposed.

In the case of Project-Based Learning (PBL), an AoA-aligned methodological approach, it is a well-studied active learning approach for L2 acquisition in neuro-typical individuals (that is, individuals without any special needs) (Gras-Velázquez 2019), and its effects on academic achievements and social skills have been studied in the context of persons with mild intellectual disabilities (Cevik and Uredi 2016; Mkrttchian 2018). However, to the best of my knowledge, a comprehensive and formal evaluation on the use of AoA/AoA-aligned approaches for L2 acquisition in DS individuals, and more generally in SEN individuals, has not been performed.

Therefore, considering all of the latent benefits offered by an AoA-aligned approach such as PBL in a variety of other teaching subjects and for individuals within a wide range of intellectual capabilities, and having that generally a high percentage of the student population requires special education support (25% in the case of Ireland[3]), the current master's research project aims to explore/assess the usability/effectiveness of AoA and AoA-aligned approaches to support L2 acquisition in children and young people with Special Educational Needs.

1.2 Selected Paradigm and Research Methodology

1.2.1 Paradigm

The selected research paradigm to guide this study is **Pragmatism**. This approach was chosen supported by the claims from different researchers who state that it is more practical and pluralistic than other paradigms such as Positivism or Interpretivism (Biesta 2010; Tashakkori and Teddlie 2021).

1.2.2 Research methodology

The proposed study aimed to explore, gather, and analyse evidence from the scientific literature concerning the application and benefits of the AoA approach as a tool to aid children and young people with Special Educational Needs in the process of acquiring a second language. For the selection of a suitable methodological framework to support the proposed study, I initially considered different methodologies such as survey, documentary research, ethnographic research, action research, and case study, along with qualitative and quantitative methods commonly applied in education research. Ethnography and survey were ultimately discarded since i) no particular focus on any cultural group was later sought, and ii) the study was meant to be exploratory rather than descriptive. Concerning the use of an action research methodology, this idea had to be abandoned due to mobility restrictions imposed by the COVID-19 Pandemic. Although some aspects of the case study methodology were initially of substantial

[3] https://www.breakingnews.ie/ireland/government-failing-children-with-special-education-needs-ombudsman-1323263.html

interest to me (for instance, it is recommended when the research questions are *why* and *how*), I had to discard it following the recommendations of not using it solely to be a preliminary study to other studies (which eventually became my main focus). Therefore, I naturally was left with the option of using documentary research, with systematic review and scoping review as the main candidate frameworks. After several iterations with the valuable advice of my thesis supervisor, we decided to support my research process with the methodological framework for scoping review proposed by (Arksey and O'Malley 2005) due, among others, the following relevant aspects (Munn et al. 2018; Mak and Thomas 2022):

- it is appropriate for research questions of exploratory nature; and
- it allows the identification and analysis of the body of literature available in a given topic (or intersection of topics) to produce a synthesis that is useful to identify knowledge/research gaps and exploitable areas for future work.

The four pillars of pragmatism, namely i) relational epistemology, ii) non-singular reality ontology, iii) mixed methods methodology, and iv) value-laden axiology, were also fundamental to selecting the methodological framework for my research study, with document selection (via keyword search) and document analysis as the methods to collect and process data, among other key aspects. In the scoping review framework, once the research questions are selected, the next steps (iteratively, if required) to investigate them include the identification of relevant studies, the selection of target studies, the charting of the data, the analysis of the data, and the reporting. A quality assessment of the studies does not have to be conducted since the purpose of this study is to explore the general scope of the research activities performed in the field of interest.

1.2.3 Research instruments and tools

For the identification of relevant scientific documents, the study relied on keyword searches to be conducted on specialised electronic databases via Google Scholar search (this is, a multidisciplinary search). For reference management, the BibTex[4] tool was used. All the retrieved

[4] `https://www.bibtex.org/`

documents were assessed for eligibility by me (the author of the study), and the relevant metadata was listed in Excel spreadsheets (later rendered in the manuscript using adequate tools). The selection process was carefully documented, the extracted data properly analysed, and the findings were reported in the form of a narrative and numerical analysis.

1.2.4 Research design

The research was conducted under the guidance of the five stages of the methodological framework for scoping reviews, which are briefly discussed below.

Stage 1. Identification of the research questions

Here, as defined in subsections 1.2.1 and 1.2.2, the pragmatic paradigm approach and its four pillars were taken into consideration to outline the following research questions:

- Has the Action-oriented Approach been used to support students with Special Educational Needs in the process of acquiring a second language?
  - If the answer is *yes*, then how broadly has that been done? And, have the potential benefits and challenges of it been comprehensively assessed?
  - Otherwise, if the answer is *no* or *not largely*, what has prevented it? And what would be the benefit of doing it?

Stage 2. Identification of relevant studies This stage starts with the definition of candidate keywords or terms to be used in keyword searches for the retrieval of relevant studies. For this, different keyword "buckets" are defined, each of them with terms representing a research strand (or a combination of them), such as a bucket for the target educational process with "second language acquisition", "foreign language learning", and similar terms. After this, the search is conducted on dedicated electronic databases by combining terms from different buckets, and the obtained results are properly pre-processed (e.g., screened to remove duplicates). This part of the study is covered in detail in Chapter 3.

Stage 3. Selection of studies

Inclusion and exclusion criteria are defined here as mechanisms to select the most suitable

documents and avoid those not addressing the selected research questions. Publication date and language are examples of inclusion criteria, which are used to both i) focus the review on recently published studies so that only updated information is analysed, and ii) enlarge the scope of the literature review by potentially also allowing the analysis of studies published in other languages than English. Concerning exclusion criteria, a critical one in my proposal was that only scientific studies are allowed, meaning that grey literature is excluded to focus on peer-reviewed studies from the global scientific community. This part of the study is covered in detail in Chapter 4.

Stage 4. Data Charting

Here, table charts are created with dedicated fields to facilitate the organisation and analysis of the studies selected in Stage 3. Such dedicated fields can include bibliographic information (authors' names, title of the study, etc.), metadata (document length and nature, etc.), key aspects (addressed focus questions, selected methodology, etc.), and relevant reading notes. This part of the study is also covered in detail in Chapter 4.

Stage 5. Data Analysis and Reporting

Once the relevant gathered data are charted, the final stage is devoted to collating and aggregating information, performing the required document analysis, summarising the results, and presenting the findings through a descriptive format. This part of the study is covered in detail in Chapters 4 and 5.

1.2.5 Data analysis tools

For the target research topics, document analysis was performed on the retrieved records to collect relevant data. Then, to analyse the collected quantitative data, adequate programmatic tools for statistical analysis and data manipulation were used, including Microsoft Excel and the Python library Pandas[5] which are widely employed in research studies.

[5] `https://pandas.pydata.org/`

1.3 Aim and Potential Limitations of the Study

1.3.1 Aim of the study and Research Questions

Recapitulating, the aim of this study is the exploration of the evidence (or at least the potentiality) of the Action-oriented Approach (AoA) to support students with Special Educational Needs (SEN) in their process of acquiring a second language (L2 acquisition). From this, the following research questions were formally formulated:

(RQ1) Has the AoA approach been used to support students with SEN in the process of acquiring a second language?

(RQ2) If yes, how broadly? And have the potential benefits/challenges of it been comprehensively assessed?

(RQ3) If no, or not broadly, what has prevented it? And what would be the benefit of doing it?

1.3.2 Potential limitations of the study

The main identified conditions that could have hindered the development of the research activities were: i) lack of prior studies on the research topic, ii) limited access to published data, and iii) time restrictions to analyse a large number of retrieved results.

These limitations involve diverse impacts and require different mitigation strategies. The first limitation may cause a premature end of the study, but is a positive sign as that it would immediately reveal an evident knowledge gap. The second limitation concerns the inability to access documents due to technical restrictions (paid access, unavailable access credentials) which can prevent relevant information from being considered in the study, but can be mitigated by directly asking the authors for pre-prints. The third limitation concerns the initially established duration of the study, which might not be enough for the resulting data analysis process but could be mitigated by formulating a follow-up study.

The above limitations will be addressed and discussed in detail at the end of the document

(Chapter 5) after having covered all the outcomes for each of the stages of the proposed scoping review.

1.4 Outline of the manuscript

The rest of the manuscript is organised as follows. First, a contextualisation will be presented in Chapter 2, so that the preliminary background of the study (presented in subsection 1.1.2) is extended to cover in more detail the main three research strands of this study, namely Second Language Acquisition (subsection 2.2), Special Educational Needs (subsection 2.3), and Action-oriented Approach (subsection 2.4). Then, Chapters 3 (Methods), 4 (Results), and 5 (Discussion) are presented in a way to address most of the items in the checklist for the PRISMA extension for Scoping Reviews - PRISMA-ScR (Tricco et al. 2018) (see Appendix A1.1).

2 Theoretical Framework

2.1 Overview

To facilitate the execution of keyword searches for the proposed scoping review, the following three main research strands were selected:

(S1) ***Second Language Acquisition***: which concerns the target (cognitive) process to be explored.

(S2) ***Special Educational Needs***: which concerns a key feature that defines the target population (this is, a proxy for the target population) in which the target process will be examined.

(S3) ***Action-oriented Approach***: which concerns the target approach used to facilitate the target process in the target population.

As a remark on the selection of the Action-oriented Approach to be explored in my research project as the framework of interest to support the second language acquisition process in SEN students, it is important to remark that I agree with what many scholars think of it: it is a new vision in education to learn foreign languages with proven success in neurotypical populations, and it is plenty of opportunities to aid SEN students in their second language learning processes.

A quick keyword search showed that every possible pair from the three selected research strands, namely (S1, S2), (S1, S3), and (S2, S3), has a not null intersection reflected in several records retrieved for each pair, with the S1 $\cap$ S2 intersection showing to be the most

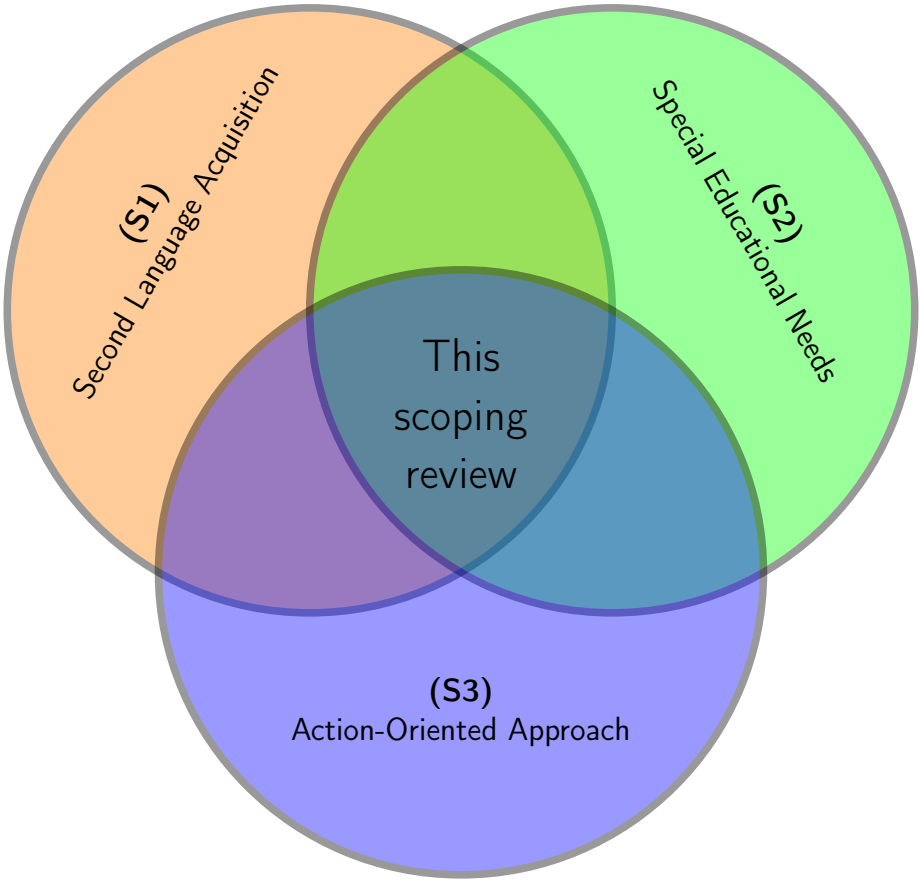

Figure 2.1: Main research strands in this scoping review.

prolific one. Thus, in terms of the selected research strands, the proposed scoping review aims to investigate if the intersection S1 ∩ S2 ∩ S3 is either null (and why) or not null (and how broad). This is visually illustrated in Fig. 2.1.

The next subsections cover in detail the selected research strands, namely Second Language Acquisition, Special Educational Needs, and Action-oriented Approach.

2.2 Second Language Acquisition (SLA)

2.2.1 Definitions and remarks

As defined in (Ellis 2010; 2015), the process of acquiring a language other than the first language (L1) is known as L2 acquisition, while the term Second Language Acquisition (SLA) is the study of L2 acquisition. Some relevant remarks on these terms are (Ellis 2015; Mitchell et al. 2019; Abdullaev 2021):

- **"Language"** refers to human languages. Thus, other types of languages such as programming languages (computer science) are not considered.
- **"First Language"** or **"L1"** refers to the mother language (or languages, in the case of native bi/multilingual individuals).
- **"Second Language"** or **"L2"** refers not only to the second but any subsequent language (e.g., third, fourth, etc.) learned after L1. Also in this context, "foreign" can be indistinctly used as an accepted alternative for "second" (this is, *second language* is equivalent to *foreign language*), although some authors consider the term "foreign" a more general one than "second" (this is, *second language* is broader than *foreign language*).
- **"Acquisition"** refers to unconscious and spontaneous learning in a natural environment. When the learning process is conscious, planned, and developed in controlled environments, it is simply referred to as "learning" rather than "acquisition".
  - From this, the widely known term Foreign Language Learning (FLL) would be conceptually different from SLA (see Table 2.1 for a detailed comparison).
  - However, it is traditionally accepted to speak of SLA generically when referring to the learning/acquisition of a second/foreign language, especially since the underlying processes behind both acquiring and learning a second language cannot be completely separated from one another.
- From the above definitions, **"L2 acquisition"** is the object of study and **"SLA"** is the discipline that studies it. However, these terms are sometimes used indistinctly by several other authors.
- While L1 acquisition is generally accomplished during infancy, SLA is a more complex and dynamic process that can take place at any age after the start of L1 acquisition. From this, L1 has a substantial influence on L2 as it is used as a platform for its acquisition.

Table 2.1: Conceptual comparison between SLA and FLL.

Item	Second Language Acquisition (SLA)	Foreign Language Learning (FLL)
Type	Natural learning.	Classroom learning.
Context	The learning process happens in environments where the language being learned is native, and thus is a part of the daily social and cultural context. For instance, an English-speaking individual learning Italian in Italy.	The learning process usually happens in controlled environments where the language being learned is not typically the community's native language. For instance, an English-speaking individual learning Italian in Ireland.
Exposure	Learners are naturally exposed to the target language in authentic and immersive contexts, and often in real-life situations.	Learners typically have limited exposure to the target language in controlled (academic) settings via classroom instruction, language courses, and multimedia resources.
Interests	Strong, integrative, and instrumental, since the language is essential for their communication needs in daily life activities.	They vary widely, and it is often influenced by secondary/external factors such as academic requirements, career goals, personal interests, or desire to connect with specific cultures.
Goals	Achieve the highest possible proficiency/fluency level in the language, as it is needed for effective communication and community integration.	They vary widely between basic conversational skills and advanced proficiency, depending on the learner's goals and external requirements.

2.2.2 SLA theories

The systematic study of L2 acquisition, SLA, began in the 1960s. This discipline has been developed with support from other domains, including psychology, neurosciences, and complexity theories, which help understand the meaning of usage and acquisition of a language. This subsection gives special consideration to the most relevant SLA learning theories.

Behaviourism and Structuralism

In the 1930s, Behaviourism emerged and quickly became a widely accepted theory of learning, viewing learning (including language acquisition) as an automatic, unconscious process of habit development driven by stimulus-response repetition (Piccardo and North 2019). Be-

haviourism draws heavily from Ivan Pavlov's conditioning theory, and states that behaviours can be acquired through associations between stimuli and responses, which are reinforced within controlled settings. It is also characterised by its emphasis on control: over the environment, over the subjects, over the learners' behaviours, and even over the errors. Critics like Noam Chomsky and John Schumann argued that behaviourism fell short by neglecting internal/cultural factors in the language acquisition process. While it may not fully explain L2 acquisition, some authors say that behaviourism offers valuable insights into aspects like pronunciation and the importance of memorisation. Chomsky's criticism of behaviourism marked a turning point in second language education: it caused a shift in the focus from a static and reductive view of learning as a stimulus-response-reinforcement mechanism to a more meaningful, conscious, and individualised process. Chomsky argued that behaviourism-based practices produced language behaviours rather than genuine learning or competence. While his criticism was not immediately turned into a new method, it realigned the focus on the cognitive factors and highlighted the creative nature of the language acquisition process.

Later in the 1940's, Structuralism emerged as a theory of language learning based on the idea that communication merely relies on structural knowledge, with language having a fundamental and permanent structure, which was a rebuttal to the evolutionary/socio-biological study of language based on Charles Darwin's theory (Gao 2007). However, although both structuralism and behaviourism initially seemed promising in explaining language learning, they eventually proved to be rigid and narrow and failed to encompass both the intricate nature of language and the dynamic/evolving nature of the language learning process.

Cognitive theories

The cognitive approach sees L2 acquisition as a conscious, thoughtful process. It involves the intentional use of various learning strategies to organise, comprehend, and retain information that help learners identify relevant information during the learning process. From this, effective L2 acquisition is said to occur when new information interacts meaningfully with the learner's cognitive structure, offering a different, more complex perspective than the one from the behaviorism and structuralism theories (Piccardo and North 2019). Among the most

relevant cognitive theories are Piaget's, Chomsky's, and Krashen's perspectives, which are briefly discussed below.

Piaget's cognitive perspective. The Swiss psychologist Jean Piaget argued that knowledge construction arises from an individual's interpretations and perceptions of physical/social experiences, which challenged the notion that learners were passive "empty vessels" to be filled with knowledge. Instead, he saw learners as active individuals with the mental capacity to absorb and adapt to new knowledge through assimilation and accommodation (Piccardo and North 2019).

Chomsky's cognitive perspective. Chomsky deemed the environment input as insufficient to describe language acquisition, and saw learning as an innate language-learning capacity of the individuals. He argued that individuals are born with a set of patterns and rules about language, which he referred to as the Universal Grammar. Chomsky's work on universal and transformational grammar from an information-processing perspective was of substantial interest for machine translation in the context of computational linguistics (Kibbee 2010), which aimed to explain how individuals could assign meaning to any sentence and generate an endless variety of them. Although this view impulsed a constructivist conceptualisation of cognition, it also embraced a divisive monolingual view of language learning (Piccardo and North 2019).

Krashen's cognitive perspective. Influenced by Chomsky's theory of innatism, the American linguist Stephen Krashen developed a 5-hypothesis[1] theory called the Monitor Model to explain L2 acquisition based on language acquisition as an inherent and intuitive process (Ellis 2015). For him, language learners allegedly require external, comprehensible input to acquire language via the hypothetical "language acquisition device" in the human brain. Different authors have challenged the validity of this theory based on the unclear testability of the proposed hypotheses (Spada and Lightbown 2006), and have claimed some learners would experiment delayed (or even failed) progress in the absence of proper instruction.

[1]The Acquisition, Monitor, Natural Order, Input, and Affective Filter hypotheses.

Socio-constructivism / Socio-cultural theories

Piaget's views. Father of constructivism, Piaget saw language development as focused on intrinsic growth, starting from within the learner (egocentric speech) and extending outward (socialised speech), and his concepts were later expanded in a more socially oriented direction by his followers. This evolution enabled constructivism to transition into socio-constructivism, with a focus on learning through social interaction in the learning environment (Piccardo and North 2019).

Vygotsky's views. The Soviet psychologist Lev Vygotsky understood learning as a knowledge-construction process, with language evolving as a complex mental function through cultural mediation and *co-construction*[2] of meaning in experienced social interactions (i.e., learning is a mediated process), followed by internalisation, where language is employed to regulate conducts and mental processes (Piccardo and North 2019). In this sense, the actual development of thinking would flow from the social to the individual rather than the opposite, and this understanding resulted in the creation of the socio-cultural theory of language learning which promotes teaching language students within their Zone of Proximal Development (this is, the gap between what L2 learners can accomplish independently and what they can accomplish via mentoring guidance).

Communicative competence theories

In 1972, the American linguist Dell Hymes challenged Chomsky's innatism model by advocating for a constructivist, communicative approach to language learning, focusing on the importance of socio-cultural aspects in language acquisition. Hymes introduced the concept of communicative competence, distinguishing it from Chomsky's linguistic competence. While linguistic competence revolved around the construction of grammatically correct sentences, Hymes' communicative competence encompassed knowing what, when, and how to communicate effectively. This shift highlighted the distinction between theoretical language knowledge and the practical ability to engage in functional and interactive communication. Subsequently, in 1980, other scholars expanded the notion of communicative competence to include four

[2] https://en.wikipedia.org/wiki/Co-construction_(learning)

essential components: grammatical, socio-linguistic, strategic, and discursive competences. Grammatical competence thus relates to grammatical capacity, paralleling Chomsky's linguistic competence and Hymes' formally possible language. Socio-linguistic competence pertains to communication within social interactions, while discursive competence involves understanding how parts of discourse contribute to the overall narrative. Finally, strategic competence addresses the ways in which individuals use communication to manage, repair, initiate, redirect, or sustain meaningful interactions (Carter n.d.; Richards and Rodgers 2014).

Emotions, plurilingualism, and creativity language learning approaches

There has been relatively recent recognition of the significance of emotions in L2 acquisition, with them no longer viewed solely as individual traits but also considered within the context of social interactions. Instead of confrontational, interactions are seen as collaborative, with emotions first originating in social interactions to be internalised later. However, emotions are often not fully theorised, not even within the socio-cultural perspective that assumes a shared understanding of them, and thus certain authors have advocated for a turn to an affective angle so that emotions can be approached dynamically and in an embodied manner (Piccardo and North 2019). Furthermore, socio-cultural theorists have emphasised the tight connection between emotional and cognitive dimensions, making their isolated conceptualisation or analysis virtually impossible.

The plurilingual approach. The plurilingual view highlights that language learning deeply influences various aspects of our personalities, from body, mind, and identity, to emotions and culture. Plurilingual individuals are seen as having a unique and complex brain system rather than the "combination" of monolingual brains. Recent research demonstrates that the need to engage executive control mechanisms when using multiple languages gives plurilingual individuals (both native and late plurilinguals) cognitive advantages such as enhanced attention control and metalinguistic understanding (Piccardo and North 2019).

The creativity approach. The creativity theory draws from psychology and offers valuable insights for comprehending the language learning process and its connections to advancements in various scientific domains. In recent decades, there has been a shift from individualistic and

one-dimensional notions of creativity to more socially/systems-oriented and dynamic research models (Piccardo and North 2019).

2.2.3 Relevant methods and approaches for L2 acquisition

Several methods, methodological approaches, and even mixes of these have been reported in the daily practice of language teaching, which generally depend on the teachers' preferences or the learners' targets (Piccardo and North 2019). The most relevant of those are described in the following subsections.

The Grammar Translation Method (GTM)

This method dates from the 19th century, and was developed to teach French and English (mainly) in European regions where German was the native language. It follows the idea of translation from L1 and L2 (and vice versa) based on the use of vocabulary lists and the application of comprehensive/isolated grammar rules at the sentence level (both to be memorised by the learners), and prioritises the development of reading/writing over oral skills. As a result, the GTM is an imbalanced method that does not account for the notion of language as a dynamic, intricate, and continuously evolving system (Piccardo and North 2019). However, it has survived as a valuable method for specific uses within the classroom, especially by teachers that rely on structured teaching material in traditional lecture-like sessions. Also, it has several strengths, such as promoting the use of language within particular contexts, and fostering both problem-solving and decision-making skills in language learners. Furthermore, the method's reliance on the teacher as the primary source of knowledge and authority has contributed to its popularity (Piccardo and North 2019). In contrast, the GTM has bold weaknesses, including: the unrealistic assumption that all learners in a classroom have a similar L1 level, or even the same L1; viewing languages as static entities (which neglects their dynamic/holistic nature), overlooking the fact that modern languages evolve and adapt according to how speakers use them; and maintaining the L1 as a reference platform for L2 acquisition.

The Direct Method

In the late 19th century, a reform movement in L2 education prioritised spoken language over written forms, leading to the rise of the Direct Method that aimed to have learners thinking in the target language by removing L1 from the learning environment, which caused the GTM method to be relegated to lower levels of popularity. The resulting push for greater language usage in everyday situations, and the notion that language learning is comparable to developing a routine, gained significant momentum around the mid-20th century and ultimately created the foundations for the Audio-lingual and Audio-visual Methods (Piccardo and North 2019).

The Audio-lingual and Audio-visual Methods

Also called the Army Method (since it was first developed for World War II soldiers), the Audio-lingual Method (ALM) was focused on the phonology, syntax, and morphology of the language, having listening and speaking as the core of the learning process. With this, more priority was given to the form of the words over the meaning of the words. On the other hand, the later Structo-Global Audio-Visual (SGAV) method emphasised the simultaneous use of visual and auditory stimuli to help learners comprehend meaning, with vocabulary acquisition primarily relying on visual aids and explanations presented in L2 (Piccardo and North 2019). These two methods influenced subsequent language education developments in several key ways. Firstly, they promoted the use of visual aids and immediate communication in L2, highlighting the importance of informal, everyday language acquisition. Secondly, they prioritised oral dialogue and established a more balanced approach to language skills, starting with listening and followed by speaking, reading, and writing. Lastly, they shifted the focus from language knowledge to language use, emphasising the goal of being able to effectively use L2 rather than just knowing it, as it was the case in the GTM method (Piccardo and North 2019). Their success stemmed from their foundation in influential language theories, specifically structural linguistics and behaviourism. However, they were not free of biases and flaws, which included a focus on isolated words/sentences (as with the GTM method), the impractical idea that language could be simply acquired through habit formation via repetition

and adjustments, and a limited understanding of the language learning process (Piccardo and North 2019).

The Total Physical Response Method

The Total Physical Response (TPR) method is a language teaching approach developed in the 1960s around the idea that language learning can be enhanced by incorporating physical movement and a strong focus on comprehension before production. In TPR, learners are exposed to spoken commands in L2, to which they are expected to respond physically. The method primarily employs the imperative mood, making emphasis on direct instructions and actions. It prioritises listening and comprehension skills, aiming to bridge the gap between passive understanding and active language production. It often reduces anxiety for learners, especially beginners, as it does not immediately demand complex sentence construction or extensive conversation, and instead allows students to learn by imitating physical actions associated with language prompts. In TPR, the teacher plays a vital role, giving commands and guiding the physical responses of language learners. As they progress, the complexity of commands and language structures generally increases. TPR is particularly effective with young learners and individuals with little prior exposure to the target L2. However, it is often used mixed with other teaching methods to provide a well-rounded language learning experience. While TPR did not become mainstream in education, certain core principles from it have played a role in advancing second language education (Piccardo and North 2019).

The Communicative Approach

The transition to the early 1970s marked a pivotal shift in language education, focusing on communication as the primary goal. This perspective equated language learning with the ability to communicate effectively, acknowledging the role of socio-cultural factors in the learning process. The shift away from traditional methods toward communicative approaches allowed the introduction of several key factors that enriched the view of language learners, including learner-centeredness, autonomous/self-directed learning, and a heightened focus on the psychological dimension (prioritised by humanistic approaches). Under the Communicative

Approach, also known as Communicative Language Teaching (CLT), teaching shifts from a narrow focus on grammar and vocabulary to a more comprehensive emphasis on *communicative competence* (a term coined by Dell Hymes), which involves the speaker's ability to understand when, what, and how to speak, considering factors such as the topic, the audience, and the context (Piccardo and North 2019). Hymes introduced the communicative competence concept to move beyond Chomsky's abstract notion of competence, and emphasised the importance of real-world language use and the needs of actual language users, arguing that merely knowing the rules of a language is insufficient for effective communication. As a remark, here the teacher's role shifts from being an authoritative source of information to a facilitator of the learning process, which enables the prioritisation of the process (L2 acquisition) over the end product (the L2 itself) (Piccardo and North 2019).

Task–Based Learning Teaching (TBLT)

Task-Based Language Teaching (TBLT), sometimes also referred to as Task-Based Learning (TBL), is an extension of the Communicative Approach with which language acquisition is achieved via practical use. Its birth was influenced by the development of the CTL approach, which reshaped teaching methods and curriculum design by placing a greater significance on tasks. TBLT highlights learner autonomy and responsibility and specifies the language skills that learners are expected to use and practice in real-world contexts through task-based activities. This approach introduced the idea of teacher-guided tasks as meaningful contexts for language learning, where the teacher offers support to help learners achieve specific learning objectives. The planned tasks can naturally lead to the acquisition of new/more sophisticated language, allowing for real-time language input and practice. As such, this approach, grounded in theoretical reflection, aims to address the limitations of the CLT approach (Piccardo and North 2019).

The Action-oriented Approach (AoA)

The Action-oriented Approach (AoA) represents a new learning perspective that views language learners as social agents capable of exercising *agency* in their language use, which

means they can deliberately make things happen as a result of their actions (Council of Europe 2001). Introduced as a new perspective in language education, the AoA is grounded around the concept of action and its associations with learning. It caused an increased enthusiasm among language educators, which resulted in the development of an important, broadly recognised body of knowledge around it (Piccardo and North 2019). The AoA is one of the research strands in the scoping review presented in this manuscript and, consequently, it is addressed in more detail in a separate subsection, namely subsection 2.4.

2.2.4 Benefits of L2 acquisition for SEN students

The benefits of L2 acquisition for SEN students are multifaceted, encompassing cognitive, academic, and social advantages, as shown in Table 2.2. By enhancing cognitive flexibility, improving literacy skills, and fostering social inclusion, L2 acquisition offers a valuable opportunity for educators and parents seeking to support the holistic development of SEN students. Educators and policymakers must acknowledge and champion these benefits to establish inclusive educational settings that accommodate the varied requirements of every student.

Table 2.2: Summary of benefits of L2 acquisition for SEN students.

Type of Benefits	Examples
Cognitive	• **Enhanced Cognitive Flexibility:** Learning a second language requires individuals to switch between two sets of linguistic rules and structures. This constant mental flexibility can help improve executive functioning, which is often difficult in students with SEN, especially those with ADHD or ASD (Sorge et al. 2017). • **Improved Problem-Solving Skills:** Multilingual individuals tend to excel in problem-solving tasks due to their ability to approach challenges from multiple linguistic/cultural perspectives, which is relevant to SEN students with problem-solving issues (Bialystok 2009). • **Enhanced Memory Capacity:** The cognitive demands of acquiring and maintaining two languages can lead to improved memory skills. This is particularly beneficial for students with SEN who may struggle with memory-related challenges (Kaushanskaya and Marian 2009).

Continued on next page

Table 2.2: Summary of benefits of L2 acquisition for SEN students. (Continued)

Type of Benefits	Examples
Academic	• **Increased Literacy Skills:** Learning a second language can enhance the literacy skills of SEN students, as the transfer of cognitive strategies from one language to another is stimulated. This transfer often results in improved reading and writing abilities (McLaughlin 2013; Fox et al. 2019). • **Enhanced Communication Skills:** Bilingual students often become better communicators in their native language, as they develop a deeper understanding of language structure and function through second language acquisition (Bialystok 2001; Noels 2001; Kramsch and Thorne 2002). • **Improved Focus and Attention:** For students with ADHD, learning a second language can help improve attention control and concentration, as it demands sustained focus on language tasks (Ebert et al. 2019).
Social	• **Increased Cultural Awareness:** Learning a second language exposes students with SEN to different cultures and perspectives, fostering empathy and cultural sensitivity (King and Mackey 2007). • **Greater Social Inclusion:** Multilingualism can facilitate social inclusion by enabling students to interact with a wider range of peers, thereby reducing feelings of isolation (Dalton-Puffer et al. 2014; May et al. 2004). • **Enhanced Self-Esteem:** Successfully acquiring a second language can boost the self-esteem of students with SEN, providing them with a sense of accomplishment and pride (Pinter 2011; Morcom 2017).

2.3 Special Educational Needs (SEN)

2.3.1 Disabilities through the history

Human history has shown that persons with physical or intellectual disabilities have been generally mistreated by other members of society for a wide variety of reasons, including their cultural, economic, political, philosophical, and social beliefs (Marini 2017). For centuries, traditional belief systems (in particular, religious ones) have greatly contributed to the segregation, rejection, marginalisation, stigmatisation, punishment, discrimination, exclusion, and even invisibilisation of populations with impairments and disabilities. Since remote times, disabled people have been treated in horrendous and inhumane ways, such as during ancient times when Neolithic communities considered that mental disabilities and physical impairments

were the results of evil spirits trapped inside people, and leaders of the tribes believed that making holes in their skulls help them by opening a door to liberate the malefic spirits and, in turn, all types of associated suffering. Another ancient example concerns the Spartans, which were deemed among the strongest warriors in ancient Greece and considered any physical or mental problem a sign of weakness: Spartans used to abandon young and elder people with physical or mental disabilities in the countryside to die, whom they considered problematic and potential obstacles for the development of their society. A third example from ancient times is the Romans, who abandoned disabled people on routes to die. In both social systems (Spartans and Romans), killing newborns with disabilities was a common practice; this did not necessarily mean that healthy newborns were going to succeed in life, as becoming disabled later in life (e.g., due to an accident or an illness) would cause a limited future, with chances only to become beggars or court jesters (Marini 2017).

In order to review some important aspects of the historical development of societal attitudes and the conceptualisation of disability, the next subsections offer a brief description of how disabilities were approached in different periods of human history, all this with the aim of establishing a context that eventually grounded the concept of special educational needs.

Disability in the Middle Ages

In this period, monotheistic religions such as Judaism, Christianity, and Islam were fundamental for developing societies, where the view of deities and the meaning of life created a culture of "sin" and "punishment" that bestowed religious congregations enough power to control societies (Logan 2013; Eyler 2016). For instance, members of the Judeo-Christian philosophy followed a system of beliefs that viewed disabled people as manifestations of God's anger, and as a result, people with disabilities were stigmatised, rejected, ignored, and excluded from the community; particularly, the Old Testament of the Christian Bible considered disabled people as proof of malefic evil's supremacy over humans. Many religions view disabilities as punishments of evil entities for ancestral transgressions, and thus the development of concepts of impairments and disabilities in this period was strongly linked to sin and corruption; for instance, members of the religious congregations banned people with blindness from entering

the houses of believers to "prevent contamination" (Marini 2017; Hodkinson 2019). There was also a predominant belief that the cause of some disseases (e.g., epilepsy and deafness) was because of Satan's possessions or other paranormal reasons, and therefore salvation of the soul and body required of exorcism practices (Braddock and Parish 2001). Western societies were immersed in the idea of "perfection of the body" with a strong rejection of natural processes such as ageing and death, resulting in a view of disabled people strongly connected with prejudices about their social admission and acceptance. Consequently, people with mental and physical disabilities and people who were seriously ill were avoided and commonly isolated, and suffered from limitations in their public interactions with non-disabled people. The socio-cultural beliefs that surrounded people with disabilities were used to justify the discriminating behaviour of non-disabled people (Marini 2017).

Disability between the 17th and 19th centuries

Several authors have argued that economic transformations between the 17th and 18th centuries contributed to the process of stigmatisation and segregation of persons with disabilities (Braddock and Parish 2001). During this period, people with mental or physical impairments were excluded and unable to economically contribute to society, which was considered a huge problem since the general public was focused on surviving in the colonies. People with disabilities were dependent on others for care, and this dependency created the general view of disabled people as detrimental to the development of wealthy societies (Nielsen 2012; Marini 2017). In the middle of the 17th century, the idea of the perfect human became prevalent among Europeans and Americans, and a new model of treatment for people with disabilities was widely spread in society. Under this new vision, people with disabilities were defined by their "biological imperfections" or "abnormalities", and there was a hope that people with disabilities could be "cured" of their mental/physical inadequacies via professional interventions. However, under the realisation that some forms of disability could not be "cured", the affected people obtained basic training to help them perform in an "acceptable" manner within society. At the beginning of the 18th century, people with disabilities were still considered punished by God and were also considered abnormal humans that needed to be studied, treated, and

cured (Marini 2017).

During the progression of the 19th century, the need to deal with the economic and socio-cultural problems caused by disabled people became prevalent, and people with disabilities were isolated or institutionalised under subhuman conditions. It was only at the end of the 19th century that the first attempts to scientifically explain mental and physical disabilities appeared, with two models having public attention: the Social Darwinism model (based on the discriminatory, and eventually unpopular, idea that the "weakest" should have decreased power and wealth), and the Eugenics model. Notably, the eugenics philosophy saw disabled people as potential hazards to social progress and development, which contributed to the design of policies preventing disabled people from getting married, and supported the use of sterilisation treatments to avoid the propagation of "abnormalities" (Marini 2017; Hodkinson 2019). The 19th century saw the emergence of the individualistic/medical model of disability (also known as the traditional rehabilitation paradigm), which way was paved by the eugenics model and the biomedical perception of disabilities. Under this model, which became the predominant model within society until the 20th century, people with disabilities were viewed as mere sufferers of personal tragedies who became a serious social burden to society.

Disability in the 20th and 21st centuries

During the early 20th century, there was little attitudinal progress in the perception of people with disabilities, who were labelled as "handicapped", rejected from social and educational activities, and prevented from establishing relationships or contact with "non-handicapped" people. Particularly, individuals with physical or mental impairments did not obtain much support after World War I and World War II (the latter substantially influenced by the eugenics philosophy). All around the world, people with disabilities kept suffering from rejection and stigmatisation, to the extent that families were advised by medical practitioners to hide family members with disabilities within their homes or in special institutions to avoid the "shame" and "distress" of being in contact with other people (Marini 2017). For instance, the French Minister of Education wanted to identify and grade children with "mental subnormalities", for which psychologists Alfred Binet and Theodore Simon designed and published in 1905

the widely known Simon-Binet Intelligence Scale for that purpose. Professional evaluations that became available at the time were focused exclusively on the diagnostic of individuals' pathologies. However, medical practitioners failed to acknowledge social, cultural, economic, and environmental factors that could impact or influence people's conditions. In the United States, the Diagnostic and Statistical Manual of Mental Disorders (widely known as the DSM) was approved by the American Psychological Association as a tool to aid mental health practitioners in the diagnosis process. People with disabilities were treated as passive recipients of medical treatment, and health procedures were performed only by medical experts with the power to make decisions. Nevertheless, this dependency generated discomfort in the general public, who toward the second half of the 20th century started demanding their right to make decisions and take control of their own lives (Marini 2017).

The first political groups of persons with disabilities were formed in the United States and the United Kingdom in the mid-1950s and 1970s, respectively. In the US, the *civil rights movement* was founded in 1954, while in the UK, the Disability Alliance group was founded in 1974, and the Union of the Physically Impaired Against Segregation - UPIAS (which played a key role in the establishment of the differences between the concepts of disability and impairments) was established in 1976 with the aim to fight for the inclusion of people disabilities within society and their rights to prosper with self-sufficient lives (Shakespeare 2013). The medical model of disability was then re-examined by groups, international organisations, and policymakers, after which the Social Model of Disability (SMD) was introduced and redefined disability as an identity, and reformulated a set of restrictions and power relationships previously instituted on persons with impairments. In this sense, some authors have stated that factors such as isolation, exclusion, marginalisation, and avoidance from full participation in the economic/social/political life are significant elements behind the limitations of people with physical or mental impairments, beyond their mere medical diagnosis (Marini 2017). With the SMD, scholars wanted to generate knowledge about how socio-cultural views and attitudes about disability intersect with disability aspects, and how factors such as race, class, gender, language, culture, and sexual orientation, among others, contribute to the shape of the concept of disability (Baglieri et al. 2011). The field of Disability Studies (which paved the way

for the later emergence of the robust subdiscipline of Disability Studies in Education) is a key component in i) asserting disability as both a social phenomenon and a civil/human rights issue, and ii) helping societies worldwide in the challenge to transform their assumptions and attitudes toward people with physical or intellectual disabilities (Baglieri et al. 2011).

2.3.2 SEN around the world

Historically and globally, children and young people with disabilities and impairments have been excluded from the educational system and segregated to specific places that were designed to barely support (or simply conceal) their physical and sensory needs (Squires 2012; Rossa 2017). There have been strong beliefs and socio-cultural constructions about different learning requirements needed for "abnormal" people, who were considered to be attended (segregated) in special needs settings, many of which operated with limitations of personnel, budget, and building capacity. It is not unusual that in a variety of these locations, people with disabilities were simply offered physical help and care but not intellectual or cognitive support as they were considered "uneducable" (Squires 2012). Traditionally, people with physical or mental disabilities were "best" treated by members of clerical and non-profit organisations (Marini 2017). However, even when copious religious institutions were considered and described as kind and supportive toward disabled people, recent research has found that for decades people with disabilities suffered from horrendous psychological and physical abuse performed by members of those institutions (Pilgrim 2012; Parkinson 2014; Przeciszewski 2022).

In the England of the mid-20th century, the 1944 Education Act (considered a masterpiece of legislation because of its international impact on the design of the framework for the post-war education service) established that a different type of education was necessary for people with mental or physical disabilities, and thus the use of categories for "handicapped" people was stated and spread (Armstrong and Barton 2008). The labels used to classify pupils (described in the Handicapped Pupils and School Health Services Regulations, 1945 (Ministry of Education 1945)), were *blind*, *partially sighted*, *deaf*, *delicate*, *diabetic*, *educationally sub-normal*, *epileptic*, *maladjusted*, *physically handicapped*, and *speech defect*, which have their roots in the medical model that saw mental and physical disabilities as a diagnosis that

required medical treatment. Consequently, children who were considered "uneducable" were not allowed to receive statutory provisions, and the Department of Health and Social Services became responsible for them (Squires 2012). However, by the late 20th century, and because of advances in different fields of knowledge such as Disability Studies, psychology, education, and sociology, the general public had more access to scientific-based information that aimed to contribute to the transformations of traditional views of people with physical and intellectual disabilities.

In 1978, the Warnock Report (Needs 1978) was published, and introduced the concept of "special educational needs" as a substitute for continued categorisation and labelling. This report highly criticised the categories of "handicap" established in the Education Act (1944), as each label generated stigmatisation and emotional damage to people with disabilities. These labels were then abolished, and the concept of Special Educational Needs (SEN) was introduced and widely spread. The new concept of SEN aimed to emphasise the prioritisation of educational needs rather than an individual learning limitation (Hodkinson 2019). The key components and the legacy of the Warnock Report have been the introduction of the SEN concept, the identification and assessment of SEN students, and the organisation of provisions supported by statutory regulations (Norwich 2019). The concept of SEN is considered to have progressed into a broader and more natural one that opened the door to inclusive education, with education systems departing from exclusion based on identities created by categories, and engaging almost seamlessly into inclusive education (Hodkinson 2019). However, it is important to highlight that the SEN concept has different meanings depending on the country where the term is used. In some countries, the concept only covers young people with physical disabilities (disorders that can affect the ability to perform physical tasks in traditional day-to-day settings), while in others it encompasses a range of students' characteristics including learning difficulties (neurological conditions that interfere with the ability to acquire, keep, manage, process, or communicate information), and even socio-economic disadvantages. Some examples of this are provided in the following subsections.

Special educational needs in England

Although the term Special Educational Needs had been coined back in the 1970's in the Warnock Report (Needs 1978), it was section 20 of the Children and Families Act 2014 (UK Public General Acts 2014) that officially framed the definition of Special Educational Needs in England: it specifies that individuals have SEN if they have either learning difficulties (i.e., greater learning struggles than their peer's average) or disabilities (i.e., limitations that prevent/hinder them from using generally provided facilities) that require special educational provisions to support them. Additionally, the Education, Health and Care (EHC) plans introduced in section 37 of the same Act, is a collection of legal documents that specifies a child's special educational needs, and the required special provisions (including educational, health care, and social care) for that child along with the sought outcomes. Section 77 of the Act promotes the issuing of a Code of Practice by the Secretary of State, which must provide information to educational stakeholders, governing bodies, management committees, school leaders, instructors, parents, and legal guardians, all involved from early childhood level until college level, about key processes such as identification, assessment, and provision for special educational needs. With this, the Code of Practice aims to guarantee that SEN pupils have the opportunity to flourish in confidence, develop existing and new talents, achieve active participation in society, and successfully transition into adulthood. The Code also states that special educational needs can be categorised into four wide groups, namely: (1) Communication and interaction; (2) Cognition and learning; (3) Social, mental, and emotional health; and (4) Sensory/physical needs. A detailed summary of these four SEN groups and respective subdivisions (as reported in (Hodkinson 2019)) is presented in Table 2.3.

Table 2.3: Summary of SEN groups and subdivisions as stated in the English Code of Practice (Department for Education and Department of Health 2014).

Need group	Subcategories
(1) Communication and interaction	• **Speech, language, and communication needs (SLCN).** Pupils with difficulties communicating with others and engaging in conversations. • **Autistic spectrum disorder (ASD), including Asperger's syndrome and autism.** Pupils with difficulties in communication, social interaction, and imagination.
(2) Cognition and Learning	• Pupils who learn at a slower pace. May show greater difficulty concerning literacy/numeracy skills, and may have speech/language delay. Young pupils have increased risk of developing mental health problems. • **Severe learning difficulties (SLD).** Pupils with significant intellectual/cognitive impairments. May have mobility/coordination and communication/perception difficulties. • **Profound and multiple learning difficulties (PMLD).** Pupils with severe complex difficulties and significant physical/sensory impairments. • **Specific learning difficulty (SpLD).** Pupils with difficulties in one or more aspects of learning. Includes: dyspraxia (coordination), dyslexia (reading and spelling), dysgraphia (writing), and dyscalculia (maths).
(3) Social, mental, and emotional health	• Pupils with emotional/social difficulties (e.g., immature social skills). May become withdrawn/isolated, and may display challenging, disruptive, or disturbing behaviour. • Recognised disorders in this category include autism spectrum disorder (ASD), attachment disorders, attention deficit disorder (ADD), and attention deficit hyperactivity disorder (ADHD).
(4) Sensory/physical needs	• Pupils with a wide variety of sensory/physical difficulties, who may require special educational provision (e.g., dedicate equipment and specialist support) for access learning. • Recognised disorders in this category include Visual impairment (VI), hearing impairment (HI), Multi-sensory impairment (MSI), and Physical disability (PD). • **REMARK:** According to the English Code of Practice, this is the group to be identified as having special educational needs.

Special educational needs in the United States

Despite the broad popularity of the term Special Educational Needs and its acronym SEN, in the United States the field of special education is more frequently addressed (or associated) with the term "Learning Disabilities"[3]. In the US, special education is a system for the provision of education and support services designed to meet the unique needs of students with learning disabilities. It is governed by federal laws and regulations, and is mainly administered by i) Section 504[4] of the Rehabilitation Act of 1973, and ii) the Individuals with Disabilities Education Act 2004 (IDEA)[5]. While the Rehabilitation Act of 1973 is a national law, with section 504 addressing the protection of qualified individuals from disability-based discrimination, IDEA is a federal legislation that aims to protect the rights of children with disabilities, which seeks to safeguard unpaid suitable public education and special education services to eligible individuals with physical/mental disabilities and impairments. The main goal of the IDEA Act is to provide instructions about how to efficiently operate and provide disability-related services such as early intervention and special education. Sections 300.304 to 300.311 of the IDEA Act contain, among others, the evaluation procedures to diagnose disabilities and determine the existence of a specific learning disability, and a list of the specific documentation to determine eligibility. For its part, Section 300.8 starts establishing the parameters to determine when a child has a disability or impairment (which boils down to determining if special education is required) and then defines 13 groups[6] in which disabilities can fall. Such categories are summarised in Table 2.4.

[3] https://www.ninds.nih.gov/health-information/disorders/learning-disabilities

[4] https://www.hhs.gov/sites/default/files/ocr/civilrights/resources/factsheets/504.pdf

[5] https://sites.ed.gov/idea/about-idea/

[6] https://sites.ed.gov/idea/regs/b/a/300.8

Table 2.4: Summary of disability groups that affect educational performance, as stated in the Individuals with Disabilities Education Act 2004 (IDEA).

Disability group	Comments
(1) Autism	• Concerns developmental disabilities significantly affecting verbal/nonverbal communication and social interaction. Involves engagement in repetitive activities, resistance to changes, and uncommon reactions to sensory experiences. • Eligibility does not apply if the educational performance is adversely affected primarily by emotional disturbance.
(2) Deaf-blindness	• Concerns concomitant hearing/visual impairments that cause severe communication and developmental issues, and require the provision of special educational accommodations.
(3) Deafness	• Concerns severe hearing impairments that affect the processing of linguistic information through hearing, resulting in adversely affected educational performance.
(4) Emotional disturbance	• Concerns long-term conditions that adversely affect educational performance. • It includes: schizophrenia; learning inabilities not explained by intellectual/sensory/health factors; inability to build/maintain satisfactory interpersonal relationships with peers/teachers; inappropriate types of behaviour/feelings under regular circumstances; general pervasive mood of unhappiness/depression; tendency to develop physical symptoms/fears associated with personal/school problems.
(5) Hearing impairment	• Concerns permanent/fluctuating hearing impairments, not included under the deafness group, that adversely affect educational performance.
(6) Intellectual disability	• Concerns significantly sub-average general intellectual functioning that adversely affects educational performance, and coexists with adaptive behaviour deficits manifested during the developmental period.
(7) Multiple disabilities	• Concerns concomitant impairments, not including deaf-blindness, that cause severe educational needs not suitable for accommodation in special education programs for a single impairment.

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Table 2.4: Summary of disability groups that affect educational performance, as stated in the Individuals with Disabilities Education Act 2004 (IDEA). (Continued)

Disability group	Comments
(8) Orthopedic impairment	• Concerns severe orthopedic impairments that adversely affect educational performance. • It includes those caused by congenital anomalies, diseases (e.g., poliomyelitis, bone tuberculosis), and other causes (e.g., cerebral palsy, amputations, fractures, burns).
(9) Other health impairment	• Concerns limited strength/vitality/alertness that adversely affects educational performance. • It is caused by varied chronic/acute health problems, including asthma, attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), diabetes, epilepsy, a heart condition, haemophilia, lead poisoning, leukaemia, nephritis, rheumatic fever, sickle cell anaemia, and Tourette syndrome.
(10) Specific learning disability	• Concerns disorders in the basic psychological processes involved in understanding/using language, that may manifest in imperfect abilities to listen, think, speak, read, write, spell, or to do maths. • It includes conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. • It does not include learning problems that are primarily the result of visual/hearing/motor disabilities, intellectual disability, emotional disturbance, or environmental/cultural/economic disadvantages.
(11) Speech/language impairment	• Concerns communication disorders that adversely affect educational performance, such as stuttering, impaired articulation, or voice impairment.
(12) Traumatic brain injury	• Concerns traumatic brain injuries caused by external physical forces that adversely affect educational performance, resulting in partial/total functional disability or psycho-social impairment. • It includes impairments in brain areas for cognition, language, memory, attention, reasoning, abstract thinking, judgement, problem-solving, sensory/perceptual/motor abilities, psycho-social behaviour, physical functions, information processing, and speech. • It does not apply to congenital/degenerative brain injuries or those induced by birth trauma.

Continued on next page

Table 2.4: Summary of disability groups that affect educational performance, as stated in the Individuals with Disabilities Education Act 2004 (IDEA). (Continued)

Disability group	Comments
(13) Visual impairment including blindness	• Concerns vision impairments that adversely affect educational performance, even with correction. • It includes both partial sight and blindness.

2.3.3 Relevant international developments on SEN

A non-exhaustive list of relevant SEN-related developments in the international arena include:

- **The Universal Declaration of Human Rights, 1948.** It gave legal status to human rights, including the right to be educated, with free provision of education at least in the early stages of development. For more details, please refer to (UN General Assembly 1948).
- **The United Nations Convention on the Rights of the Child (UNCRC), 1989.** It specified that every child must have equal access to education regardless of, among many others, disabilities or impairments, and with a scope transcending formal schooling so that they can live a satisfying life within a pluralistic society. For more details, please refer to (UN General Assembly 1989).
- **The World Conference on Education for All, 1990.** The *Framework for Action: Meeting Basic Learning Needs* was adopted during this conference, stating that every person, regardless of their particular conditions, should be able to benefit from all the educational opportunities that address their basic learning needs. For more details, please refer to (UNESCO 1990).
- **The World Conference on Special Needs Education, 1994, also known as The Salamanca Statement.** It transformed the international educational field by promoting the inclusion of SEN students in mainstream schools without any excuses. For more details, please refer to (UNESCO 1994).

- **The World Education Forum in Dakar, 2000, also known as The Dakar Framework.** It led to a greater emphasis on the total inclusion of SEN students in mainstream institutions by extending the Salamanca Agreement with a set of worldwide challenges to be addressed in order to improve inclusive education. For more details, please refer to (UNESCO 2000).
- **The Convention on the Rights of Persons with Disabilities (CRPD), 2006.** It is an international agreement on human rights that promotes, protects, and ensures the full and egalitarian enjoyment of all human rights and fundamental freedoms of all persons with any type of limitations, impairments, or disabilities, protecting human diversity. For more details, please refer to (United Nations 2006).

2.4 Action-oriented Approach (AoA)

2.4.1 Definitions and generalities

In a general sense, an *approach* refers to a way of considering/doing something[7], or tackling a problem, a task, or a situation. More technically speaking, it is a systematic and organised way of addressing a particular issue or achieving a specific goal, based on a set of principles, strategies, or steps that guide decisions. There exist approaches in diverse fields and contexts not limited to education. For example, in business, there are different approaches to market research or project management, and in healthcare, there are various approaches to patient care/treatment. Approaches provide a structured framework for dealing with complex or multifaceted challenges, and the preference for one or another often depends on the nature of the problem, the available resources, and the desired outcomes. Different fields and disciplines generally have their own established approaches that are recognised as effective/efficient ways of achieving specific objectives.

In the context of education and learning, "approach" refers to a set of principles, methods, or strategies used to guide either the teaching or learning of knowledge/skills in a partic-

[7] https://dictionary.cambridge.org/dictionary/english/approach

ular field or discipline. It encompasses the underlying philosophy or theoretical framework that informs how educators, instructors, learners, or even users approach a problem or a subject (e.g., L2 acquisition). Some educational fields have approaches tailored to their specific goals (e.g., the communicative approach in language teaching), while some approaches are of general application (e.g., the constructivist approach for the acquisition of any type of knowledge). Approaches help shape curriculum design, teaching methods, assessment strategies, and, overall, pedagogical practices within educational environments.

Concerning the "action-oriented approach", a quick keyword search shows that it is a transversal approach that has been mentioned in specialised literature since at least the 1950's. More specifically, a Google Scholar search performed in September 2023 retrieved about 13,000 results, which are distributed as shown in Figure 2.2 (made with data obtained with the help of the programmatic tool **academic-keyword-occurrence**[8]).

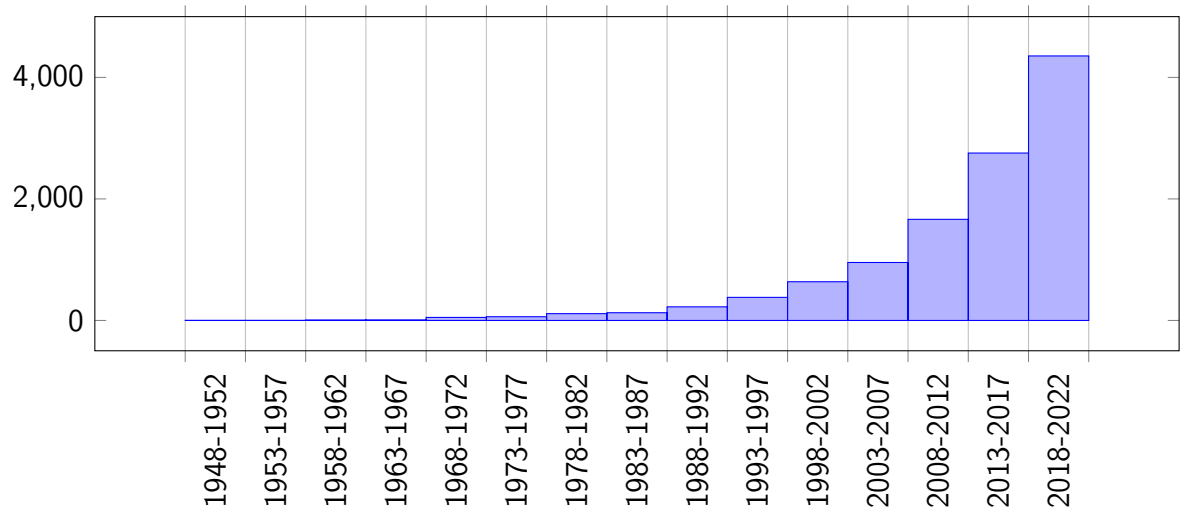


Figure 2.2: Histogram of records in Google Scholar retrieved with the keyword search "action-oriented approach". [Search performed in September 2023 using the tool **academic-keyword-occurrence**.]

The focus of this subsection (and more generally, of the scoping review reported in this thesis), is specifically on the Action-oriented Approach (AoA) defined by the Common European Framework of Reference for Languages (CEFR) in 2001 (Council of Europe 2001). As a remark, Figure 2.2 shows a substantial increase use of the term "action-oriented approach" in the last 2 decades, perhaps as a result of the popularity that the CEFR's AoA has gained

[8] https://github.com/Pold87/academic-keyword-occurrence

in the field of language education after its introduction in 2001 (about 11,200 records since 2021). The following subsections will address the main concepts of the CEFR's AoA, which heavily borrows from contents in (Irby et al. 2013) and (Piccardo and North 2019). The interested reader is invited to check such renowned books and the references therein.

2.4.2 AoA-based language learning

The Action-oriented Approach (AoA) is a holistic philosophy that integrates curriculum planning, teaching, and evaluation into a cohesive and effective system. It draws on various theories and concepts (e.g., agency, collective intelligence, complexity theories, and situated cognition) to help us understand the innovative nature of language education promoted by the CEFR, making the AoA a comprehensive and forward-thinking approach.

Despite posing significant challenges for researchers and educators, the adoption of this novel concept has yielded favourable outcomes: it has been linked to enhanced learner determination, autonomy, and encouragement, and the facilitation of practical language use (factors closely associated with improved success in L2 acquisition).

The following subsections present a brief overview of key theories that underpin the AoA as a fresh perspective in L2 acquisition, which offers valuable insights into SLA.

Theory of Agency

Agency, rooted in the socio-cognitive theory, revolves around the concept of emergent interactive agency and underscores the individual's pivotal role in learning, focusing on the emergence of learning through external influences like culture and community. Rejecting deterministic ideas (e.g., such as that only the context determines the actions), this perspective leverages the individuals' ability to act as agents in their environments and over themselves, utilising knowledge and cognitive skills to achieve desired outcomes.

Distinguishing "actor" from "agency," an actor follows rules while an agent wields the power to influence and reshape the world. Agency, as the capacity to act within a socio-cultural context, recognises that all actions are culturally framed within culture and society, and thus

enables self-development and flexibility that are essential to deal with evolving circumstances (as those derived from language transformation). In education, it signifies a shift from passive learner models to cognitive and socio-constructivist views of learning. Agency occurs in 3 modes, namely personal agency (self-directed), proxy agency (delegated), and collective agency (socially coordinated), and has 4 core features: *intentionality*, focused on action plans; *forethought*, focused on action selection and related; *self-reactiveness*, focused on goal-setting processes; and *self-reflectiveness*, focused on outcomes of actions.

The main implications of the Theory of Agency for the AoA are: i) concrete goals work better than vague aims; ii) self-efficacy is leveraged by past successful experiences; iii) learners act by iterative feedback/feedforward mechanisms, first setting a target and then making adjustments to fine-tune their performance; and, iv) an iterative approach allows learners not to get worried about perfect performance in early stages of learning.

Theory of Action

Recent research has shifted from a language-centred perspective to an action-centred one (especially, "situated" action), with various scholars studying discourse converging on a set of principles that remark on the importance of activity and action. This shift is seen as bringing applied linguistics closer to disciplines that analyse work processes. Researchers highlight the significance of the situation as a focal point for both researchers and practitioners, the centrality of action as a core concern in social sciences, and the role of discourse as both a mediation process and a tool for planning, evaluating, or re-configuring actions within a given situation. They also make a clear distinction between actions and events/behaviours, with actions focused on the agency of the learner and the intentionality of the actions (which can influence the environment or the agent itself). Actional linguistics, firmly rooted in the CEFR, is based on this Theory of Action, which encompasses planned actions and pre-existing frameworks being continuously re-framed within evolving contexts.

The main implications of the Theory of Action for the AoA are: i) action involves the learner's initiative, and thus does not equate to behaviour; ii) discourse is both a mediation/facilitating process and a meta-cognitive tool for planning/evaluation/assessment within synergic group

works; iii) focus is on the learner as an agent iteratively acting on planning, checking pre-established hypothesis, and re-framing them based on experience; and iv) goals frequently extend beyond practical or transactional aims, may involve self-acting, and can usually be accommodated.

Communities of Practice (CoPs)

Communities of Practice (CoPs) are collectivities that share common interests and interact to enhance their knowledge/skills in associated domains. While the community members may not necessarily collaborate or meet frequently, CoPs often have a core group at the center with active members, surrounded by a larger, less-active circle that might offer occasional feedback. However, what distinguishes CoPs is more than shared interests: they also involve shared responsibilities and grow a shared repertoire that encompasses experiences, tools, and problem-solving approaches, which evolve over time through sustained interaction among their members.

The main implications of CoPs for the AoA are: i) collaborative, interest-oriented tasks/projects should be carried out in small groups, and can connect the learners' (or other people's) experiences to actual practice; ii) the teachers are required to facilitate the tasks for projects to work; iii) collaborative thinking comes from personal engagement and community sense via cooperation between the learners themselves and the teachers/instructors; and iv) recognition must be given for both collaborative efforts and final outcomes.

Collective Intelligence (CI)

Collective intelligence (CI) is the ability of human groups to collaborate intellectually, fostering creativity and innovation, and applicable at various scales (from small groups to the entire human species). CI encompasses 6 key areas of expertise, namely ethics, practicality, biophysics, social dynamics, culture, and knowledge acquisition, and incorporates the situated nature of communication and cooperation along with a communication perspective of social collaboration within a cultural framework. Research indicates that the individuals' capacity to empathise and understand other people's emotions can predict collective intelligence and

effective group collaboration. In this sense, CI is a catalyst for human development, which in turn promotes a growth environment for CI.

The main implications of CI for the AoA are: i) successful meaning co-construction directly relies on the social dimension (i.e., groups are diverse and different from each other); ii) in functional groups, the whole is greater than the parts, since cooperation leads to innovation; and iii) effective handling of interpersonal relationships within groups is crucial for success.

Situated Cognition

Situated Cognition, also known as Situated Learning, is an educational and psychological theory that focuses on the role of the physical and social context in shaping learning and cognition. Developed between the 1980s and 1990s, this theory challenges traditional cognitive psychology that often treats the mind as a separate and disembodied entity. In the earlier part of the 20th century, learning was predominantly seen as an isolated cognitive process within an individual's mind, detached from their real-world experiences. However, since the late 20th century, there has been a growing interest in the concept of "situated" cognition and learning that incorporates socio-cultural contexts/activities in the learning process, extending the realm of learning/cognition beyond the confines of the learner's brain, which results in the argument that "cognition and learning are processes of enculturation". However, the concept of "situation" in the context of situated cognition remains somewhat ambiguous. Light has been shed on this matter by suggesting that any typical experience results from the interplay of external and internal conditions, which interact to create a situation. As a result, the idea of learning within a situated context marked a departure from traditional educational psychology views.

Situated cognition sees learning as a dynamic process that extends across various elements, including the learner, the subject of learning, the learning environment, and the learning activity itself. That perspective unifies these components, facilitating an interconnected understanding of the world, the individual, and the relationships among them.

The main implications of Situated Cognition for the AoA are: i) teachers/instructors are required to generate learning situations that are dynamic in nature; ii) authentic, contextualised activities are required for the success of the learning process; iii) different learners generally appropriate the same contents in different ways; and iv) learning through culturally-contextualised screenplays can be creatively leveraged in tasks related to e.g. the assembly of experiences.

Ecological Models and Complexity Theories

Ecological Models offer a fresh way of understanding the context in which language use and language acquisition take place. This perspective extends beyond the learning settings, and challenges traditional notions of development and language. It serves as a radical departure from the human-centred view of the world by introducing a concept of the learning environment as a "complex adaptive system", and views the mind as the sum of purposeful interactions between the learner and the surrounding world. Complexity Theory aids in examining multi-level systems and their continuous evolution, while Systems Theory provides practical insights for studying intricate processes (like language acquisition within an ecological framework). In this context, the concept of *affordances* (representing how the characteristics of elements in the environment suggest how they can be used) enhances the grasp of agency's role within a systematic perspective, as affordances represent the ways in which learners perceive and respond to the possibilities presented to them by their surroundings.

3 Methods

This chapter is dedicated to the methods used in the proposed scoping review, and therefore it documents the items in the *Methods* section of the PRISMA-ScR Checklist (see Appendix A1.1), namely: Eligibility criteria (item 6), Information sources (item 7), Search (item 8), Selection of sources of evidence (item 9), Data charting process (10), Data items (item 11), and Synthesis of results (item 13). As a remark, item 12 (Critical appraisal of individual sources of evidence) is optional and was not performed in this research project, and item 5 (Protocol and registration) is planned to be done in the short future as supporting material for a potential publication.

3.1 Eligibility Criteria

Type of sources

For my study, I only allowed peer-reviewed records, including suitable journal articles, book chapters, and books. This means that grey literature records such as conference articles, reports, and theses, to name a few, were not taken into consideration.

Concerning the nature of the study reported in the records, no eligibility criteria were set. This means that records reporting primary research (e.g., action research) or secondary research (e.g., desk research) outcomes, and both qualitative and quantitative (and even mixed) studies, were all eligible. However, records that did not fit into the conceptual framework of the study (e.g., only involving action-oriented approach for SLA in neurotypical populations) were irrevocably excluded.

Language of the sources

I limited the scoping review to records fully written in English with the aim to optimise the feasibility of identified records since English is nowadays considered the *de facto* international language of science and technology[1].

Publication period

Even though one of this project's subject strands (namely, the "action-oriented approach") has received increased attention during the last decade in the context of language education, it in fact has its roots around 2001 with the publication of the Common European Framework of Reference for Languages [2] (CEFR) (see subsection 2.4.1). Similarly, concerning the subject strand "special educational needs", and more specifically in the context of EU initiatives and policies for inclusive education, some reference dates are of particular interest:

- The European Agency for Special Needs and Inclusive Education[3] (formerly known as the European Agency for Development in Special Needs Education), a collaborative platform for inclusive education and special needs aiming to advance educational policies and practices for learners with special needs, has been around for 24 years after being transferred from the Danish Government to the Agency member states.
- The European Association of Service providers for Persons with Disabilities[4] (EASPD), an umbrella organisation that represents over 20,000 support service providers for people with disabilities in key work areas like education and inclusive living, and that aims for the full implementation of the UN Convention on the Rights of Persons with Disabilities (United Nations 2006) and the Salamanca Statement on Special Education (UNESCO 1994), has its roots in 1995 and became fully professionalised by 2005.

Lastly, concerning the subject strand "second language acquisition", modern studies in that field have roots in the work of Professors Pit Corder and Larry Selinker in the 1960's.

[1] https://www.science.org/content/blog-post/english-language-science
[2] https://www.coe.int/en/web/common-european-framework-reference-languages
[3] https://www.european-agency.org/
[4] https://www.easpd.eu/

From the above, the last three decades were defined as a reasonable period to look for relevant records. However, and with the aim to have a balance between coverage and recentness, I performed the proposed scoping review with records from up to the past 15 years. With this, the range for publication date of records to be included in the identification stage via search strategy was set between 2008 and 2023.

Characteristics of the sources

I defined the eligibility criteria of this project based on the selected research strands shown in Figure 2.1 and using the **P**opulation-**I**ntervention-**C**omparator-**O**utcome (PICO) model[5] (Methley et al. 2014). The resulting eligibility criteria are as follows:

- **P (Population):** Individuals with special educational needs (SEN).
- **I (Intervention):** Second Language Acquisition (SLA), or L2 Acquisition.
- **C (Comparator):** Use of Action-oriented Approach (AoA) or AoA-aligned approaches to support L2 Acquisition.
- **O (Outcome measures):** Suitability/applicability of AoA/AoA-aligned approaches for SLA in SEN students. **REMARKS:**
  - This implies that records with studies on neurotypical populations could be included, as long as they were also deemed applicable to SEN populations with expected similar outcomes.
  - Records not directly involving SEN populations, but with a literature review that analyses AoA/AoA-aligned approaches for SLA in SEN students, could also be included.

[5]Since in this scoping review the type of studies were not restricted, the PICOS variant (PICO with **S**tudy type) was not applicable.

3.2 Information Sources

In preliminary searches for relevant bibliographic references that I performed for assignments of my M.Ed's courses (such as (Perez-Gonzalez 2022)), I found that Google Scholar was a versatile tool for that purpose. Even though Google Scholar is not an actual database like those maintained by institutions or publishers such as MEDLINE [6] (Medical Literature Analysis and Retrieval System Online) or ERIC [7] (Education Resources Information Center), it is a powerful search engine that allows the examination of different records from a wide variety of scientific databases as long as those records (or references to those records, such as their DOI web pages and similar[8]) are indexed in Google Scholar. This means that Google Scholar allows for searches that, in a sense, are multi-disciplinary database searches, with the remark that a truly multi-disciplinary database search would include all the records in all the involved databases while a Google Scholar search includes only a subset of those records (this is, those indexed in Google Scholar), which back in 2014 was estimated in about 87% of all the scholarly documents (Khabsa and Giles 2014).

Among the most significant advantages of multi-disciplinary database searches, the following are the most commonly highlighted:

- They provide a suitable starting point for researchers that are new to a given research topic (which is my case), since those researchers may not have full awareness to search in a particular database. This, in turn, adds rigor to the research process by allowing the consideration of a wider and more diverse range of perspectives on the target research topic(s).

- A given research topic may overlap different disciplines, and so a subject database search could substantially limit the number of relevant records retrieved for a given search. With

[6] `https://www.nlm.nih.gov/medline/medline_overview.html`

[7] `https://proquest.libguides.com/eric`

[8] A DOI (Digital Object Identifier) is a type of unique and persistent identifier used by publishers to identify records, and a DOI web page is a website where a journal publisher shares the metadata of a given record. Other types of such identifiers include: Publisher Item Identifier (PII), International Standard Book Number (ISBN), International Standard Recording Code (ISRC), Serial Item and Contribution Identifier (SICI), ERIC accession number (ERIC ID), PubMed Identifier (PMID), and Grant/Contract number.

this, multi-disciplinary database searches i) allow for a wider search that even includes disciplines and fields that were unimaginable at the early stages of the research project, ii) foster potential cross-disciplinary collaborations, and iii) help researchers identify unconsidered connections between apparently disjoint fields.

In addition to the above advantages, search engines that allow for multi-disciplinary database-like searches (such as Google Scholar) generally allow for a more efficient research process since several databases are examined at once, thus preventing the individual examination of several databases separately. In particular, Google Scholar also incorporates the following helpful features:

- It has advanced filtering and search options, such as allowing the definition of a custom date range, enforcing the order of appearance of several keywords (i.e., to form "key phrases"), and enforcing the exclusion of records with given keywords or key phrases.
- It allows for a simplistic yet versatile search strategy[9], which feels more intuitive than other online research platforms like PubMed[10].
- It provides citations to retrieved records in both plain format (including APA, Harvard, and Chicago) and file format for specialised citation tools (including EndNote and BibTex).

However, despite all the advantages listed above, it is worth mentioning that the main disadvantages of multi-disciplinary database searches are that i) they might not cover all the involved disciplines with sufficient (or even suitable) depth, ii) they can retrieve spam results, and iii) in the specific case of Google Scholar, it can block access to their Google Scholar platform after their established limits for "too many requests".

For all the advantages listed above, I selected Google Scholar to perform the required searches for relevant records.

[9] Google Scholar Guide. Available at `https://library.acg.edu/how-to-guides/google-scholar/advanced-searching`

[10] `https://pubmed.ncbi.nlm.nih.gov/`

3.3 Search

The main considerations for the developed search are described in detail in the following subsections.

Language and spelling

Following the eligibility criteria for language of the sources (defined in subsection 3.1, page 46), the search was done in English. However, concerning spelling, it was considered to include both British and American spelling (when needed).

Search operators

Two search operators were used: i) `AND`, to retrieve records with all listed terms (narrow search); and ii) `OR`, to retrieve records with either of the listed terms (widen search). The search operator `NOT` (used to exclude records with given terms), was not included due to the risks of missing relevant records.

Wildcards, truncation, and keyword separation

The wildcard `?` was initially considered for hyphenated adjectives (for instance, the use of `action?oriented` to retrieve both `action-oriented` and `action oriented`), but ultimately discarded since Google Scholar retrieves them anyway without the need of a wildcard.

Concerning the truncation symbol `*` for truncated searches (for instance, using `educati*` for `education`, `educational`, `educative`, etc), it was initially considered but ultimately deemed not helpful.

The search command `AROUND(#)` is available in Google Scholar searches to look for keywords with a certain word separation, given a maximum number # of words between two keywords (for instance, the use of `special AROUND(1) needs` to get `special needs`, `special educational needs`, and so on). It was also initially considered, but ultimately not used since it was not very useful.

Search fields

Concerning the search fields, the search was performed anywhere in the records, including title, abstract, body, and even references, so that the search was not limited to the "periphery" of the records (e.g., if only titles were searched).

Subject headings and Index terms

Subject headings (e.g., from FAST - Faceted Application of Subject Terminology[11]) or index terms (e.g., from MeSH - Medical Subject Headings[12]) were not included since a quick search on the matter did not show any relevance. Also, highly specific terms such as "Autism Spectrum Disorder", "Autistic Disorder", "Down Syndrome", and "Dyslexia" do indeed have FAST/MeSH index terms, but they were not used in order to obtain more general results, and other terms like "Intellectual Disability", "Neurodevelopmental Disorders", and "Neurocognitive Disorders" are indexed but are not quite associated with the target topic (education). However, to take advantage of the already established terms (e.g., "special educational needs"), phrase searching was identified as very useful, which in turn helped to reduce the number of irrelevant records. In this context, it is worth noting that contiguous keywords not enclosed in quotes are not considered by Google Scholar as exact phrases and, in that case, each word is treated as a separate keyword, resulting in a conventional keyword search instead of a phrase search.

Research strands

Due to the specificity of each research strand involved in the scoping review presented in this manuscript (see Figure 2.1), a traditional keyword search was discarded in favour of a phrase search, so that an exact chain of words can be searched in all the involved databases (as discussed in the previous section).

For this, the most relevant alternative phrases or expressions for the three main research strands (S1), (S2), and (S3) in Figure 2.1 were investigated, and the outcomes of that

[11] https://en.wikipedia.org/wiki/Faceted_Application_of_Subject_Terminology
[12] https://en.wikipedia.org/wiki/Medical_Subject_Headings

process are presented below grouped in three "expression buckets" (B1), (B2), and (B3), with their contents organised by number of retrieved results in Google Scholar searches (the latest performed on 2023/02/25):

(B1) **Alternative process-related expressions for (S1):**

- "second language acquisition" (about 556,000 results)
- "second language learning" (about 412,000 results)
- "foreign language learning" (about 283,000 results)
- "foreign language teaching" (about 223,000 results)
- "second language teaching" (about 119,000 results)
- "second language instruction" (about 50,700 results)
- "foreign language instruction" (about 39,400 results)
- "foreign language acquisition" (about 29,000 results)

(B2) **Alternative needs-related expressions for (S2):**

- "special educational needs" (about 310,000 results)
- "additional educational needs" (about 2,160 results)

(B3) **Alternative approach-related expressions for (S3):**

- "action oriented approach" (about 12,000 results)
- "action based approach" (about 3,750 results)

Some remarks for the above:

- Even though all the listed alternative expressions for Second Language Acquisition are not particularly accurate (or even equivalent), they were allowed as proxies due to their

fundamental proximity and popular use.

- In reference (Piccardo and North 2019) (page 138), a certain type of *action-based approach* is reported as "very close" to the CEFR's Action-oriented Approach, and therefore I allowed it in my search as a valid proxy. Also, several authors have (wrongly, but perhaps inadvertently) used the two expressions indistinctly, which further supported the idea of allowing it as a valid proxy.
- In Google Scholar, hyphenated adjectives are indistinguishable from their non-hyphenated version (this is, `"action oriented"` and `"action-oriented"` retrieve the same records), and so there is no need for both versions or for the use of a wildcard `?` to account for the space/hyphen (as previously discussed). On the other hand, some authors (perhaps inadvertently) omit the use of the hyphen, and so excluding the non-hyphenated version could have had a negative impact by missing out potential key records.
- Even though some of the above expressions have popular acronyms (e.g., SEN for Special Educational Needs, and AoA for Action-oriented Approach), those acronyms are not standard and have different meanings in different fields (e.g., SEN for State Enrolled Nurse, and AoA for Articles of Association). Therefore, acronyms were not included in the search.

There is also the case when two subject strands can be "merged" or "blended" into a single category. These occurrences are presented below, organised by number of results from Google Scholar searches (the latest performed on 2023/02/25):

(B1B3) **Merging/blending of (B1) and (B3):**

  - "action oriented foreign language teaching" (about 26 results)
  - "action oriented second language acquisition" (1 result)
  - "action oriented foreign language acquisition" (1 result)
  - "action oriented foreign language instruction" (1 result)

As a remark of the above, similar combinations including "action oriented foreign language acquisition", "action oriented second language instruction", "action oriented second language learning", and "action oriented second language teaching" retrieved 0 results.

However, due to a substantially reduced number of relevant records based on (B1), (B2), and (B3), further iterations of the research process required the exploration of other alternatives, which included buckets of "shortened" expressions. These are presented below in two buckets, with items organised by number of results from Google Scholar searches (the latest one performed on 2023/02/25):

(B1s) **Shortened versions of expressions in (B1):**

- "second language" (about 1,190,000 results)
- "foreign language" (about 1,560,000 results)

(B3s) **Shortened versions of expressions in (B3):**

- "action oriented" (about 136,000 results)
- "action based" (about 610,000 results)

The rationale for using shortened versions is that it allowed for additional (less popular) alternatives such as:

- "action oriented method" (about 421 results), "action based method" (about 342 results), "action oriented methodology" (about 338 results), "action based methodology" (about 198 results), "action oriented technique" (about 97 results), "action based technique" (about 57 results); and
- "foreign language education" (about 64,500 results), "second language education" (about 16,700);

to list a few. However, this course of action increased the chances for the search process to i) retrieve spam results (e.g., results including "action based <on something>", which were

not necessarily relevant).

An additional bucket considered later was a modern alternative for "special educational needs" (although with much fewer results). Some occurrences for this case are listed below, organised by numbers of results retrieved in Google Scholar searches (the latest one performed on 2023/03/01):

(B2m) **Modern alternative for (B2):**

- "neurodiverse" (about 7,800 results)
- "neurodivergent" (about 5,680 results)

Among the expected expressions to be covered via (B2m), it was expected to have: neurodiverse need(s), neurodivergent student(s), neurodivergent learner(s), neurodivergent learning, and neurodivergent teaching.

Evaluation of candidate search strategies

Before arriving at a consolidated search strategy, several iterations were required to explore different options (mainly due to the shortcomings or failures of early candidates), with each new candidate strategy requiring design changes such as refining steps, which are detailed below.

The first iteration consisted of evaluating and aggregating all the possible search expressions `b1 AND b2 AND b3` for every b1 in bucket **(B1)** (page 52), b2 in bucket **(B2)** (page 52), and b3 in bucket **(B3)** (page 52). (For illustration purposes, Table A1.4 in the Appendix shows all such individual search expressions if the search process were performed that way.) This search rule can be summarised as the following compact search expression (divided into different lines only for ease of visualisation):

("second language acquisition" OR "second language learning" (3.1)

OR "foreign language learning" OR "foreign language teaching" (3.2)

OR "second language teaching" OR "second language instruction" (3.3)

OR "foreign language instruction" OR "foreign language acquisition") (3.4)

AND

("special educational needs" OR "additional educational needs") (3.5)

AND

("action oriented approach" OR "action based approach") (3.6)

Even though the above search expression is syntactically valid, Google Scholar does not accept it as it has 382 characters, which is longer than its character limit for searches (namely, 256 characters). Then, such an expression had to be redefined, for which a detailed exploration of each of its components was performed, showing that only the first part of the above search expression (lines 3.1 to 3.4) is 254 characters long. This meant that it had to be split to allow its joint evaluation with the second part (line 3.5) and the third part (line 3.6), and the outcomes of that separate evaluation had to be reconciled later. A suitable split is then:

Part 1a: (3.7)

("second language acquisition" OR "foreign language acquisition"

OR "second language learning" OR "foreign language learning")

Part 1b: (3.8)

("second language instruction" OR "foreign language instruction"

OR "second language teaching" OR "foreign language teaching")

from which the resulting search expressions are

(3.7) AND (3.5) AND (3.6), (3.8) AND (3.5) AND (3.6)

with 254 characters each, respectively. An express evaluation of these two search expressions showed that simply 21 independent records remain after the removal of duplicates, of which just a few (about 5) had the potential to be eligible. Therefore, a new iteration was then designed with the aim of increasing that number.

The second iteration consisted of evaluating and aggregating all the possible search expressions b1b3 AND b2 for every b1b3 in bucket **(B1B3)** (page 53) and b2 in bucket **(B2)** (page 52). (For illustration purposes, Table A1.5 in the Appendix shows all such individual search expressions if the search process were performed that way.) This search rule can be summarised as the following compact search expression (divided into different lines only for ease of visualisation):

("action oriented foreign language teaching" (3.9)

OR "action oriented second language acquisition" (3.10)

OR "action oriented foreign language acquisition" (3.11)

OR "action oriented foreign language instruction") (3.12)

AND

("special educational needs" OR "additional educational needs") (3.13)

Since the above expression is 262 characters long, it cannot be directly searched in Google

Scholar and thus the following split is proposed

(3.9 OR 3.10 OR 3.11 OR 3.12) AND ("special educational needs"),

(3.9 OR 3.10 OR 3.11 OR 3.12) AND ("additional educational needs").

which corresponds to two search expressions with 229 and 231 characters, respectively. Surprisingly enough, each of the above search expressions yielded zero results. This meant that another search strategy had to be evaluated.

The third iteration then consisted of evaluating and aggregating all the possible search expressions b1s AND b2 AND b3s for every b1s in bucket **(B1s)** (page 54), b2 in bucket **(B2)** (page 52), and b3s in bucket **(B3s)** (page 54). (For illustration purposes, Table A1.6 in the Appendix shows all such individual search expressions if the search process were performed that way.) This search rule can be summarised as the following compact search expression (divided into different lines only for ease of visualisation):

("second language" OR "foreign language") (3.14)

AND

("special educational needs" OR "additional educational needs") (3.15)

AND

("action oriented" OR "action based") (3.16)

which is 151 characters long and can be directly searched in Google Scholar without modifications. It is worth noting that the above search strategy yields a set of results that is a super-set of the one obtained in the first iteration since bucket **(B1)** is contained in bucket **(B1s)**, and bucket **(B2)** is contained in bucket **(B2s)**.

A final iteration, aimed to enlarge the set of retrieved results in the previous iteration, consisted of evaluating and aggregating all the possible search expressions b1s AND b2m AND b3s for

every b1s in bucket **(B1s)** (page 54), b2m in bucket **(B2m)** (page 55), and b3s in bucket **(B3s)** (page 54). (For illustration purposes, Table A1.7 in the Appendix shows all such individual search expressions if the search process were performed that way.) This search rule can be summarised as the following compact search expression (divided into different lines only for ease of visualisation):

("second language" OR "foreign language") (3.17)

AND

("neurodiverse" OR "neurodivergent") (3.18)

AND

("action oriented" OR "action based") (3.19)

The above search rule is 124 characters long and thus can be directly searched in Google Scholar without modifications.

Consolidated search strategy

Using the results from the evaluation of candidate search strategies, a consolidated search strategy was formed as follows

("second language" OR "foreign language")

AND

("special educational needs" OR "additional educational needs"

OR "neurodiverse" OR "neurodivergent")

AND

("action oriented" OR "action based")

which has 190 characters and could be directly searched in Google Scholar. As a remark, this consolidated search strategy encapsulates all the rules used in the first, third, and fourth itera-

tions in the previous subsection (recalling that the second iteration yielded zero results).

Additional sources of records

During the screening process of the identified records obtained via the consolidated search strategy, relevant records from their bibliography section were allowed to be identified as candidate records. With this, there were increased chances of finding relevant records which, for instance, did not include the selected key phrases, or were initially excluded by the imposed time limit (i.e., 2008-2023).

3.4 Selection of Sources of Evidence

Maynooth University Library, popular research networking sites such as ResearchGate[13] and Academia[14], and direct communication with authors, were used as supplementing/supporting tools to get access to full-text copies of target records.

Concerning the screening process, two processes were performed:

1. A check was performed to verify if the search terms were indeed in the records (which required a quick search in the body of the records, when possible). This was required since some of the retrieved records were spam and did not contain all the search terms. As a result, records without all the search terms, or those for which that could not be confirmed, were immediately excluded.
2. Provided that all of the search terms were found, a check was performed to verify if all the search terms were used in a correlated context. This was important since, for instance, some search terms only appeared in the list of references and not in the body. As a result, records with search terms not strongly correlated were immediately excluded.

Concerning the eligibility process, it was based on the considerations presented in Section 3.1, along with the following additional considerations:

- Only records with full-text access were allowed in the synthesis.

[13] www.researchgate.net
[14] www.academia.edu

- For records with full-text access, only those with the following characteristics were included in the synthesis: those for which all the search terms were found in the body of the records; those that could be confirmed to have a strong correlation among the search terms; and those that properly addressed each of the research strands.

3.5 Data Charting Process and Data items

I designed data-charting tables (provided in Chapter 4) to register all the data items of interest that I selected, which were meant to be directly identifiable in the records (this is, no additional communication with the authors was planned to obtain missing or additional data). The most relevant of such selected data items are:

- For records involving applied research methodologies (e.g., evidence-based practice developed in-situ): AoA-based and AoA-aligned methodological approaches used or proposed to aid SLA in SEN population.
- For records with a detailed literature review section, or records involving documentary research (e.g., survey analysis, meta-analysis, etc): AoA-based and AoA-aligned methodological approaches mentioned or identified to aid SLA in SEN population.

Once the data items were defined, I personally charted the data collected from all the eligible records that passed the eligibility criteria, trying to capture the most relevant information for each item. After that, I extracted relevant statistics from the charting tables. More details on this are provided in the next subsection.

3.6 Synthesis of results

For the handling and summarisation of the charted data, I established a manual process supported by the use of PDF files Excel spreadsheets. First, PDF versions of all the selected records were saved, and dedicated Excel templates were created. Second, each PDF document was read and analysed in its entirety, and relevant annotations (based on the selected data items) were directly made on the PDF files. Then, individual Excel templates were populated

using information extracted from the annotations. Finally, composite Excel templates were populated by summarising the data registered in the individual tables. In addition, several verification iterations were performed to confirm the validity and consistency of the registered data. This manual method was expected to be enhanced with dedicated assistive tools (for instance, Covidence[15]) in the event of a high volume of identified sources of evidence, which was not ultimately the case as seen later in section 4.1.

[15] https://www.covidence.org/

4 Results

This chapter is dedicated to the outcomes of the proposed scoping review, and therefore it documents the items in the *Results* section of the PRISMA-ScR Checklist (see Appendix A1.1), namely: Selection of sources of evidence (item 14), Characteristics of sources of evidence (item 15), Results of individual sources of evidence (item 17), and Synthesis of results (item 18). As a remark, item 16 (Critical appraisal within sources of evidence) is optional and was not performed in this research project.

4.1 Selection of Sources of Evidence

The process followed to select the source of evidence is depicted in detail in Figure 4.1. After removing duplicates, a total of unique 359 records were identified from both Google Scholar searches and alternative sources (e.g., relevant records mentioned as references in candidate sources of evidence). Using the screening process defined in Section 3.4, 336 records were excluded, resulting in 23 finalist records to be retrieved and assessed for eligibility as also described in Section 3.4. Of these 23 records, 10 were excluded since it was not possible to get access to full-text copies (listed in Appendix A1.3), and 2 more were excluded since they did not directly explore applicability on SEN. Consequently, only 11 records were considered eligible to be included in the synthesis of this scoping review.

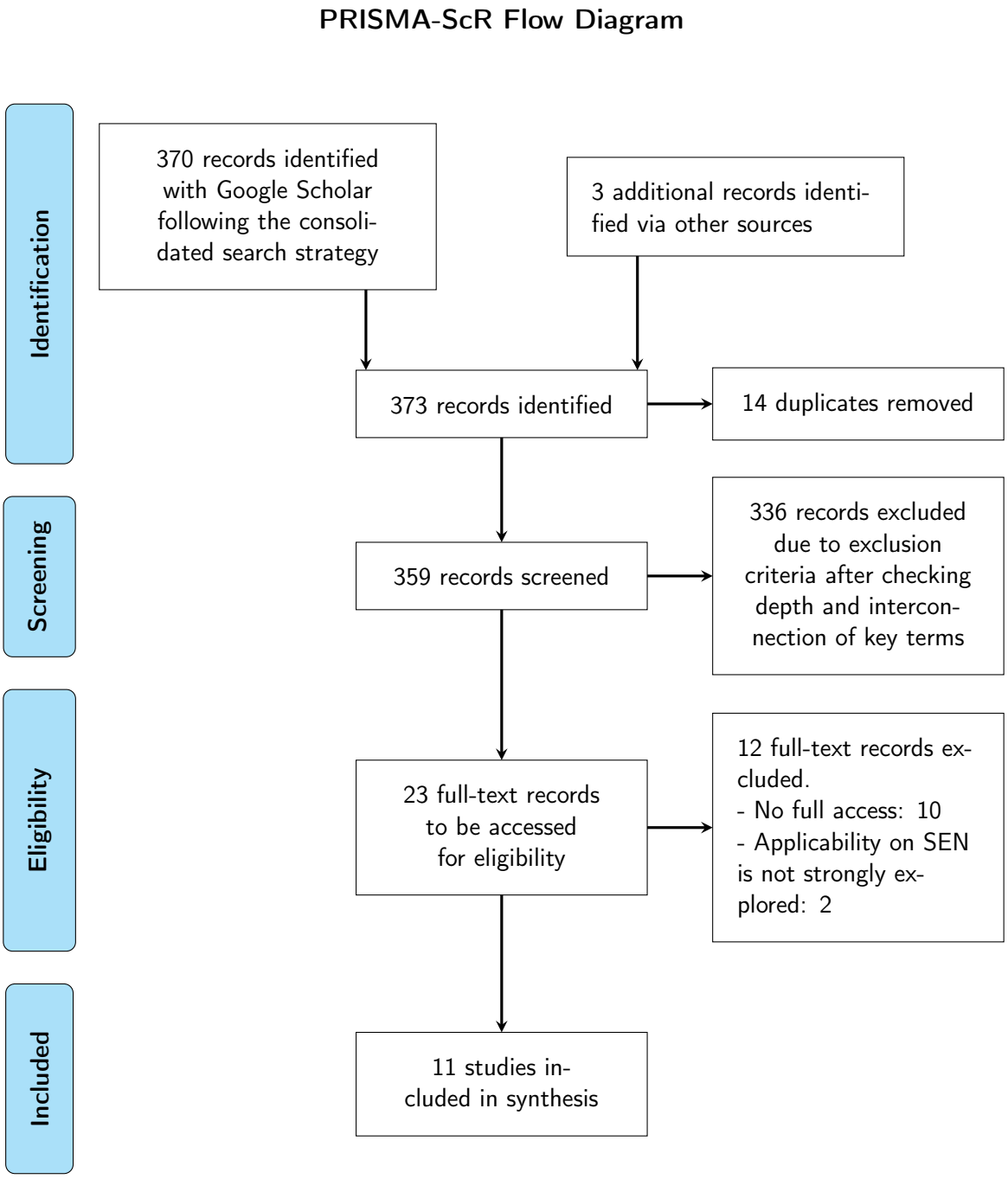


Figure 4.1: PRISMA-ScR flow diagram for the current scoping review. The rationale for screening and eligibility are described in Section 3.4.

4.2 Characteristics of Sources of Evidence

Below I provide the main characteristics of the N=11 records included in the synthesis of this scoping review:

- 6 studies (54.54%) reported AoA/AoA-aligned methodological approaches that could be implemented by teachers to improve their SLA pedagogical practice for SEN students: Performance Language Pedagogy Approach (9.09%), Task–Based Language Teaching Approach (9.09%), Technology-Assisted Approach (27.27%), Neurodiversity Model in English as a Foreign Language (9.09%), Learning by Teaching Approach (9.09%).
  - Of the above, 3 studies (27.27%) involve SLA.
  - Of the above, 3 studies (27.27%) are not directly related to SLA, but their application is suggested/planned.
- 4 studies (36.36%) concern meta-analyses, surveys, or systematic reviews concerning the stakeholders' beliefs, attitudes, or perspectives about the inclusion of SEN students in the mainstream classroom.
- 1 study (9.09%) reported a methodological approach to improve the training of EFL teachers for SEN students (namely, Multi-perspective classroom videography).

The earliest record was published in 2014, and the remaining studies (90.9%) have been published since 2018, with most of them (54.54%) published since 2021, indicating a recent rapid increase in research.

Most studies (81.82%) drew on qualitative analysis only, while a single study was reported to be conducted using qualitative and quantitative analysis (18.18%). The country where most studies were conducted is Germany in 3 (27.27%) cases, while England, Greece, Hong Kong, Ireland, Japan, Romania, Spain, and Eurasia (online) resulted with 1 study (9.09%) each.

All the relevant general characteristics of the analysed sources of evidence are summarised in Table 4.1.

Table 4.1: General characteristics of the N=11 analysed sources of evidence.

Characteristic	Amount (n)	Percentage (100*n/N)
Publication year		
<2018	1	9.09%
2018	2	18.18%
2019	1	9.09%
2020	1	9.09%
2021	4	36.36%
2022	2	18.18%
Publication type		
Journal	6	54.54%
Book chapter	5	45.45%
Country of the study		
England	1	9.09%
Eurasia (online)	1	9.09%
Germany	3	27.27%
Greece	1	9.09%
Hong Kong	1	9.09%
Ireland	1	9.09%
Japan	1	9.09%
Romania	1	9.09%
Spain	1	9.09%
Type of analysis		
Qualitative only	9	81.82%
Qualitative + Quantitative	2	18.18%
Target population		
Students only	3	27.27%
Staff only	4	36.36%
Staff + students	4	36.36%

4.3 Results of Individual Sources of Evidence

The individual results of the selected sources of evidence are shown in Table 4.2.

Table 4.2: Results of the N=11 individual sources of evidence.

Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Padurean (2014)	Journal article	• Teachers • Parents • Children with and without SEN	• Multisensory Approach • Total Physical Response • Performative Language Pedagogy • Action-oriented Approach	None (survey study)
Piazzoli (2018)	Book chapter	• L2 learners with intellectual disabilities: Autistic Spectrum Disorder, Dyspraxia, Down Syndrome, Dysgraphia, Dyscalculia, Dyslexia	• Communicative Approach • Task-Based Language Learning Approach • Total Physical Response • Action-oriented Approach • Embodied, Drama-Based Approaches • Multisensory Approach • Communicative Language Teaching Approach	• Performative Language Pedagogy

Continued on next page

Table 4.2: Results of the N=11 individual sources of evidence. (Continued)

Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Pérez-Valverde, Ruiz-Cecilia, Medina-Sanchez and Guijarro-Ojeda (2021)	Journal article	• Teacher • Specialist teacher in Therapeutic pedagogy • Student's private speech therapist • The school's headmaster	• Universal Design for Learning • Communicative Language Teaching • Task-Based Language Learning • Total Physical Response • Multisensory Teaching	None (qualitative study)
Chan (2022)	Journal article	• Learners with intellectual disabilities: Dyslexia, Autism.	• Multimodal Discourse Analysis • Acquisition-Oriented Pedagogy	• Task-Based Methodology
Afitska and Said (2022)	Journal article	• Learners with specific learning difficulties: Dyslexia, Dysgraphia, Hearing impairments, Visual impairments, Autism. • Teachers: Six TESOL teachers	• Multisensory Structured Language Approach	• Technology Assisted Approach (online classrooms)

Continued on next page

Table 4.2: Results of the N=11 individual sources of evidence. (Continued)

Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Kaimara, Deliyannis, Oikonomou and Fokides (2021)	Journal article	• Eleven SEN children: 2 with moderate intellectual disability; 3 with severe intellectual disability; 3 with cerebral palsy, of which 1 with severe intellectual disability; 1 with Down syndrome with severe intellectual disability; 1 with ASD with severe intellectual disability, tactile defensiveness, and hyperactivity; 1 with ASD without intellectual disability. • Seven specialised therapists for children with disabilities: 1 social worker, 1 occupational therapist, 1 speech therapist, 1 health visitor, 1 nurse, 1 special auxiliary staff, 1 physiotherapist assistant.	• Task-Based Learning Approach • Gamification Approach	• Technology-Assisted Approach (smart learning environment), but not for SLA

Continued on next page

Table 4.2: Results of the N=11 individual sources of evidence. (Continued)

Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Yphantides (2021)	Journal article	• Students learning difficulties: Dyslexia, Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorder.	• Communicative Approach • Project-Based Approach • Universal Design for Learning	None (systematic review)
Falcão (2018)	Book chapter	• Twenty-six SEN children: 12 from a mainstream school (moderate/general learning difficulties, specific learning difficulties (dyslexia, literacy & retention skills), bottom set in Science class); 14 from a special school (general learning difficulties).	• Discovery Learning • Discovery-based Hands-on Approaches • Constructive Learning • Child-Tangible Interaction	• Technology-Assisted Approach (tangible interactive tabletop), but not for SLA

Continued on next page

Table 4.2: Results of the N=11 individual sources of evidence. (Continued)

Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Kolbe (2021)	Book chapter	• Pre-service Foreign Language Teachers (PSFLT)	• Learning By Teaching (Resource-Orientated Approach) • Continuous Learning-Teaching • Cooperative Learning • Social Learning • Socially Integrative Teaching • Constructivist Approach • Flow Approach • Needs-Oriented Pedagogy • Individual Approach • Action-Oriented Learning • Sustainable and Innovative Approach	• Learning By Teaching (but not for SLA)
Blume and Schmidt (2020)	Book chapter	• Pre-service Foreign Language Teachers (PSFLT)	• Inclusive Education Approach	• Multi-perspective Classroom Videography approach (but for the training of teachers)

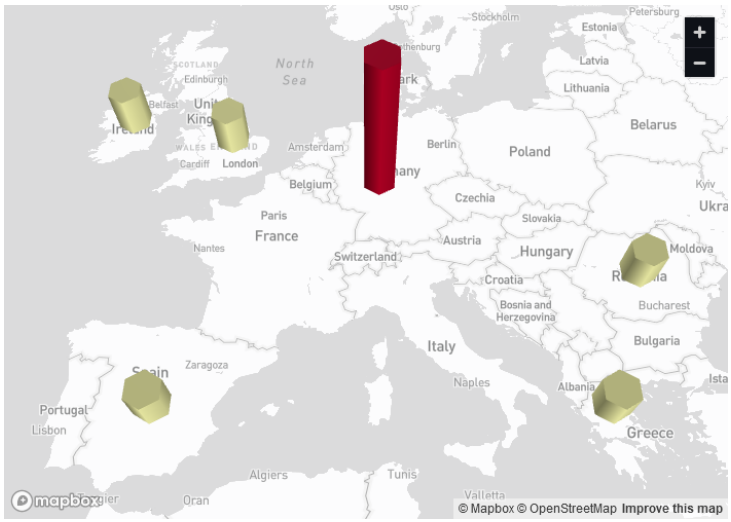
Continued on next page

Table 4.2: Results of the N=11 individual sources of evidence. (Continued)

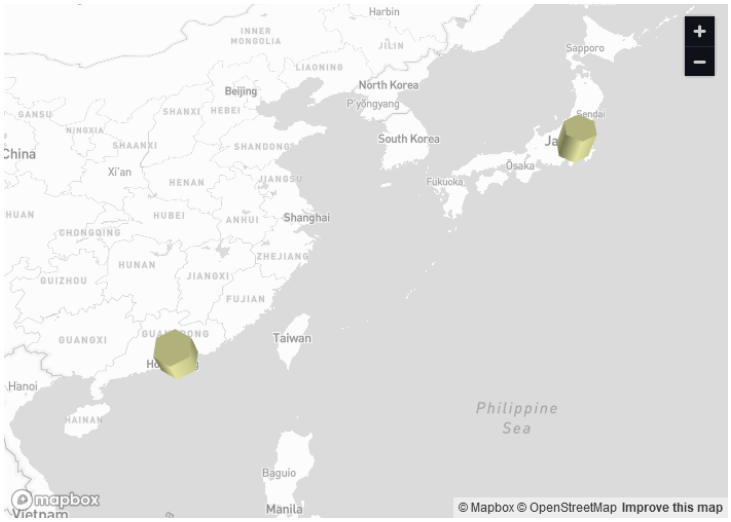
Authors	Type	Population	Identified/mentioned methodological approaches	Used/proposed methodological approaches
Schauer (2019)	Book chapter	• English as a Foreign Language (EFL) in-service teachers	• Differentiation Approach • Inclusive Education Approach • Communicative Approach • Task-Based Learning • Action-oriented Approach	None (survey study)

4.4 Synthesis of Results

In this section, I report the synthesis results with respect to the most relevant aspects of my study. For this, I provide 2 tables (namely, Table 4.3 and Table 4.4) with the most relevant methodological characteristics of the sources of evidence, and Figure 4.2 with a bar chart showing the countries where the studies in the selected sources of evidence were performed. Also, below I provide additional insights concerning the data in Tables 4.3 and 4.4.



(a) Studies in Europe.



(b) Studies in East Asia.

Figure 4.2: Bar chart showing the countries where the studies in the selected sources of evidence were performed, where each bar is proportional to the number of studies. The online study covering several Eurasia countries is not depicted for ease of illustration. [Both images were generated using the open-source Python framework Streamlit (`https://streamlit.io/`).]

Main findings concerning the country and date of the studies:

- 4 records (36.36%) reported the country and the dates in which the studies were conducted:
  - Romania, May 2014 (9.09%),
  - Ireland, January-April 2017 (9.09%),
  - Hong Kong, January-September 2021 (9.09%), and
  - several Eurasia countries for an online study between 2020-2021 due to COVID-19 related restrictions (9.09%).
- 7 records (63.64%) reported the country but not the dates in which the studies were conducted:
  - Germany in 3 studies (27.27%), and
  - England, Greece, Spain, and Japan in 1 study (9.09%) each.

Main findings concerning the type of analysis in the studies:

- The majority of records (81.82%) reported being qualitative studies:
  - 2 qualitative survey analyses (18.18%),
  - 2 exploratory quality content analyses (18.18%),
  - 1 qualitative case study (9.09%),
  - 1 ethnographic qualitative study (9.09%),
  - 1 qualitative research design (9.09%),
  - 1 qualitative meta-analysis (9.09%), and
  - 1 systematic review qualitative study (9.09%).
- 2 records (18.18%) reported the use of both qualitative and quantitative analysis.

Main findings concerning the number of participants and their ages:

- 7 records (63.64%) reported the number of participants and their ages.
- 2 records (18.18%) did not report the number of participants nor their age range.
- 2 records (18.18%) did not require participants for their study because of the nature of the studies.

Main findings concerning the reported data collection methods:

- Questionnaires were reported in 3 records (27.27%).
- Filming of workshops, video recording and observations, and semi-structured interviews were reported in 2 records (18.18%) each.
- Focus groups (group interviews), photographs, open interviews with closed and open questions, information from ethnographic data, text and documents, mono-perspective and multi-perspective assessments, surveys, internal test based on the System Usability Scale (SUS) and Serious Game Evaluation Scale (SGES), and observations of speech, gestures, and body postures as tools to collect data were reported in 1 record (9.09%) each.
- 1 record (9.09%) did not report the methods used to collect data.

Main findings concerning the mentioned or identified SLA methodologies:

- Multisensory approaches were reported in 5 records (45.45%).
- Task-Based Learning Approach and Action-oriented Approach were reported in 4 records (36.36%) each.
- Total Physical Response, Communicative Approaches, Universal Design for Learning, and SEN-oriented Approach were reported in 3 records (27.27%) each.
- Action-Oriented Pedagogy, Communicative Language Teaching Approach, Differentiated Approach, and Smart Learning Environment Approach were reported in 2 records (18.18%) each.
- Performance Language Pedagogy, Drama-Based approaches, Multimodal Approach De-

sign for Learning, Skill-Based Approach, Direct and Explicit teaching approach, Humanistic Approach, Multimedia approaches, Gamification Approach, Transmedia Learning Approach, Independent Living Skills Approach, Project-based Approach, Continuous Learning-Teaching, Cooperative Learning, Social Learning, Social Integrative Teaching, Constructive Learning, and Discovery Learning were reported in 1 record (9.09%) each.

Main findings concerning the used or proposed SLA methodologies:

- 4 records (36.36%) did not use or propose any methodological approaches, of which:
  - 2 (18.18%) were survey studies,
  - 1 (9.09%) was a meta-analysis, and
  - 1 (9.09%) was a systematic review.
- 3 records (27.27%) reported the use of the technologically-assisted approach, of which:
  - 1 study (9.09%) used an online classroom,
  - 1 study used a smart learning environment (but not for second language acquisition), and
  - 1 study (9.09%) used a tangible interactive tabletop (but not for second language acquisition).
- 1 record (9.09%) reported the use of the Performative Language Pedagogy methodological approach.
- 1 record (9.09%) reported the use of the Task-Based Learning methodological approach.
- 1 record (9.09%) reported the use of the Learning-by-Teaching approach.
- 1 record (9.09%) reported the use of the Multi-perspective Classroom Videography Approach (focused on the training of educational staff).

Table 4.3: Methodological characteristics of the N=11 selected sources of evidence: General aspects.

Characteristic	Amount (n)	Percentage (100*n/N)
Date range of the study		
Reported	4	36.36%
Not reported	7	63.64%
Participants age		
Reported	2	18.18%
Not reported	7	63.64%
NA	2	18.18%
Data analysis		
Qualitative survey analysis	2	18.18%
Qualitative content analysis	2	18.18%
Qualitative ethnographic study	1	9.09%
Qualitative systematic review	1	9.09%
Qualitative research design	1	9.09%
Qualitative meta-analysis	1	9.09%
Qualitative case study	1	9.09%
Qualitative + Quantitative	2	18.18%
Data collection		
Video recording	4	36.36%
Questionnaires	3	27.27%
Semi-structured interviews	2	18.18%
Focus groups (group interviews)	1	9.09%
Open interviews	1	9.09%
Photographs	1	9.09%
Ethnographic data compilation	1	9.09%
Text/document compilation	1	9.09%
Mono/multi perspective assessments	1	9.09%
Surveys	1	9.09%
Internal tests	1	9.09%
Direct observation (speech, gestures, postures)	1	9.09%
Not reported	1	9.09%

Table 4.4: Methodological characteristics of the N=11 selected sources of evidence: SEN-related learning methodologies.

Characteristic	Amount (n)	Percentage (100*n/N)
Mentioned/identified SLA methodologies		
Multi-sensory Approach	5	45.45%
Communicative Approaches	5	45.45%
Task-Based Learning	4	36.36%
Action-oriented Approach	4	36.36%
Total Physical Response	3	27.27%
Universal Design for Learning	3	27.27%
SEN-oriented Approach	3	27.27%
Constructivist Approaches	2	18.18%
Action-oriented Pedagogy	2	18.18%
Differentiated Approach	2	18.18%
Smart Learning Environment Approach	2	18.18%
Performance Language Pedagogy	1	9.09%
Drama-based Approaches	1	9.09%
Multi-modal Approach Design for Learning	1	9.09%
Skill-based Approach	1	9.09%
Direct and Explicit Teaching Approach	1	9.09%
Humanistic Approach	1	9.09%
Multimedia Approach	1	9.09%
Gamification Approach	1	9.09%
Transmedia Learning Approach	1	9.09%
Independent Living Skills Approach	1	9.09%
Project-based Approach	1	9.09%
Continuous Learning-Teaching	1	9.09%
Cooperative/Social Approaches	1	9.09%
Discovery Learning	1	9.09%
Used/proposed SLA methodologies		
Not used or proposed	4	36.36%
Technology-Assisted Learning	1	9.09%
Performative Language Pedagogy	1	9.09%
Task-Based Learning	1	9.09%
Learning-by-Teaching Approach	1	9.09%
Other used/proposed learning methodologies		
Technology-Assisted Learning (not for SLA)	2	18.18%
Multi-Perspective Classroom Videography (to train staff)	1	9.09%

5 Discussion

This chapter is dedicated to discuss the results of the proposed scoping review, and therefore it documents the items in the *Discussion* section of the PRISMA-ScR Checklist (see Appendix A1.1), namely: Summary of evidence (item 19), Limitations (item 20), and Conclusions (item 21).

5.1 Main Findings (Summary of evidence)

In this section, I summarise the main results concerning the research questions established at the beginning of the project. For that purpose, I briefly recall the essence of the 3 established research questions:

(RQ1) Has the AoA approach been used to support SEN students in the L2 acquisition process?

(RQ2) If *yes*: how deeply and broadly?

(RQ3) If *no*, or not largely: what prevented it and what were the missing opportunities?

The following subsections address them in detail the findings for each of them.

5.1.1 Discussion on Research Question RQ1

Main findings

None of the selected sources of evidence revealed the use of the AoA on SEN population for SLA purposes.

Supplementary findings

Although the selected sources of evidence included in this study did not confirm the use of the AoA on SEN students to support their L2 process, 4 studies (36.36%) were identified as strongly aligned with the grounds of the Action-oriented Approach:

- 1 study (9.09%) conducted in Ireland (Piazzoli 2018) used Performative Language Pedagogy, and referred to Action-oriented Approach, Communicative Approach, Task-Based Language Learning Approach, Total Physical Response Approach, Drama-Based Approaches, Multisensory Approach, and Communicative Language Teaching Approach.
- 1 study (9.09%) conducted in Hong Kong (Chan 2022) used Task-based Methodology, and referred to Multimodal Discourse Analysis and Acquisition-oriented Pedagogy.
- 1 study (9.09%) conducted in Germany (Kolbe 2021) used Learning By Teaching, and referred to Learning By Teaching (Resource-Orientated Approach), Continuous Learning-Teaching, Cooperative Learning, Social Learning, Socially Integrative Teaching, Constructivist Approach, Flow Approach, Needs-oriented Pedagogy, Individual Approach, Action-oriented Learning, and Sustainable and Innovative Approach.
- 1 study (9.09%) conducted in Romania (Padurean 2014) referred to Multisensory approach, Total Physical Response, Performative Language Pedagogy, and Action-oriented Approach.

Answer to RQ1

From the findings listed above, the answer to the first question can be considered a "weak" *yes*.

5.1.2 Discussion on Research Question RQ2

Main findings

In addition to the 4 AoA-aligned cases listed in the previous subsection, several other methodological approaches that are reported in the remaining 7 studies (63.64% of the sources of

evidence, namely Pérez-Valverde et al. (2021); Afitska and Said (2022); Kaimara et al. (2021); Yphantides (2021); Falcão (2018); Blume and Schmidt (2020); Schauer (2019)) could be used in combination with the AoA because of the strong bonds between them. Among the most relevant of these I found the following:

- Technology-Assisted Approach.
- Universal Design for Learning.
- Gamification Approach.
- Project-based Approach.
- Discovery-based Hands-on Learning Approaches.
- Child-Tangible Interaction.
- Inclusive Education Approach.
- Differentiation Approach.

Additionally, evidence of an increasing trend of research in the area was also identified, since 90.9% of the records selected as sources of evidence were published after 2018, with 45.45% published only in 2021.

Supplementary findings

Although not directly related to the analysed scope of applications of the AoA approach on SEN students for SLA purposes, I would like to provide a summary of the positive perspectives on the inclusion of SEN students in mainstream FLL classrooms, perspectives that in my opinion contribute to paving the path for a more inclusive application of the AoA approach in a near future.

To start with, the inclusion of SEN students is viewed by many educators as a "testament" to the educational system's commitment to diversity and equity, a perspective aligned with the principle of equal educational opportunities for all learners. In this context, teachers often perceive inclusion as the ideal platform for i) fostering social interaction and emotional

growth for SEN students (e.g., to cultivate acceptance, self-esteem, and appreciation), and ii) mutually enhancing interpersonal skills for both SEN students and their neurotypical peers (e.g., collaboration, empathy, compassion, tolerance). From the viewpoint of the family, inclusive education is viewed as a means to promote equity in education, providing SEN children with the opportunity to learn alongside neurotypical peers which, among others, celebrates diversity and contributes to a reduction in stigmatisation of SEN students. Family members often perceive inclusive educational settings as diverse and enriched learning environments, and usually report appreciation for the exposure of their SEN children to peers of diverse abilities in collaborative environments where they can contribute with unique strengths and talents. Concerning the attitudes of neurotypical students on inclusion, it has been reported that they tend to believe that the presence of SEN peers enriches their learning experience, and that they generally perceive the diversity in the classroom as an opportunity to learn from one another and gain varied perspectives, fostering a sense of unity and respect for individual differences. It has also been reported that neurotypical students often hold the belief that interaction with peers with diverse needs enhances their own social and communication skills, and contributes to the development of empathy, acceptance, and compassion. Finally, concerning SEN students themselves, it has been reported that they often express positive beliefs about their inclusion in mainstream classrooms, seeing it as a way to promote acceptance, build a sense of community and belonging, encourage a culture of mutual learning, create an extended supportive network, and challenge stereotypes and negative perceptions about special needs.

Answer to RQ2

Based on the findings listed above, the answer to the second question is that there is scarce evidence of a wide use of the AoA/AoA-aligned approaches to teach foreign languages to students with special educational needs. However, the future looks promising since a recent trend in research efforts in the area was also identified.

5.1.3 Discussion on Research Question RQ3

Based on the findings and answers for the research questions RQ1 and RQ2, it is clear that the third question had also to be explored.

Due to the scarce evidence found for the application of the AoA in the SEN population for SLA purposes (which limits the amount of material available for meta-analysis on the matter), I decided to analyse the situation from a different perspective: given the amount of evidence showing that the AoA has been widely and successfully used for SLA in neurotypical populations (see for instance Noel et al. (2022)), then the lack of evidence of AoA-based second language acquisition for SEN populations could perhaps be explained by a low level of inclusion of SEN students in mainstream FLL classrooms. Concerning this, 3 of the selected sources of evidence (27.27%) revealed strong barriers and challenges that have excluded SEN students from the benefits of SLA in mainstream FLL classrooms (regardless of the learning approach used):

- Attitudinal barriers: negative attitudes, perspectives, and beliefs of all involved actors, including those from i) main educational staff (e.g., teachers, instructors, etc) and supporting educational staff (e.g., therapists, social workers, nurses, etc), ii) family members (parents, guardians, etc), iii) neurotypical students, and iv) SEN students themselves.
- Pedagogical barriers: the language learning challenges of SEN students.

Based on the above, and also in recent relevant studies in the area such as Howard (2023), I would like to centre the discussion on the more general topic of barriers and challenges concerning the inclusion of SEN students in mainstream FLL classrooms (regardless of the learning subject), for which the subsequent subsections will address each of the following items:

- Educators' barriers.
- Families' concerns and fears.

- Neurotypical students' attitudinal barriers.
- SEN students' attitudinal barriers.
- SEN students' learning challenges.

Also, I would like to add a subsection to discuss my findings concerning the potential benefits that, in my opinion, the AoA could have offered in the SLA process for SEN populations, as I see them as missed opportunities.

Educators' barriers

The inclusion of SEN students in mainstream FLL classrooms is a pivotal aspect of contemporary educational practices, and thus teachers' perceptions of it play a fundamental role in shaping the effectiveness of the applied learning approaches.

Among the main negative perceptions reported by educators, I found that they generally express concerns about effectively addressing the diverse learning needs of SEN students in heterogeneous classrooms, with the challenge lying in providing personalised instruction while maintaining the overall pace of the class. From this, educators often find themselves struggling with the task of adapting conventional curriculums to suit the needs of SEN students while adhering to academic standards, which requires careful planning, collaboration, and additional workload. The allocation of resources such as specialised personnel, assistive technologies, and adequate support, to name a few, is also a commonly reported concern since insufficient or unsuitable resources impede a seamless implementation of inclusive practices. Finally, managing behavioural challenges exhibited by SEN students (e.g., impulsiveness in some ADHD students) poses considerable concerns, imposing teachers to constantly seek strategies to maintain a safe and healthy classroom environment.

Families' concerns and fears

Understanding the families' perceptions of inclusive education is crucial, especially the negative ones, as they can significantly impact the success of associated initiatives.

Worried about limited academic progress of their SEN children resulting from segregation,

biases, stigmatisation, and negative attitudes from neurotypical peers and educators, families may avoid their integration into inclusive environments. Concerns of this type also arise from their awareness of disparities in the learning process of their SEN children with respect to neurotypical students: since adequate resources and support are needed to address their children's specific requirements to mitigate progress gaps, families often fear that inclusive environments may not be well-equipped to meet the individualised needs of their SEN children, which can result in the avoidance of mainstream classrooms for their education. Similar challenges emerge when families perceive a lack of collaboration from the involved educational staff in designing appropriate support plans for their SEN children.

Neurotypical students' attitudinal barriers

Inclusive education involves the integration of both SEN and neurotypical students into mainstream classrooms, and thus understanding the beliefs of the latter is also essential for fostering positive and supportive learning environments.

Some neurotypical students have expressed concerns about potential disruptions to their learning processes due to the varied needs of their SEN peers, resulting in a fear that the presence of students with different abilities might affect the overall pace of instruction. This is particularly exacerbated by the belief that teachers might focus more on SEN students, leading to feelings of neglect or unequal attention and a negative perception of inclusion as a barrier to fair balance. Also, it has been reported instances of neurotypical students being unsure of how to effectively interact with their SEN peers, and that some inadvertent actions of their SEN peers can cause discomfort or misunderstandings that may result in social challenges for them.

SEN students' attitudinal barriers

Inclusive education cannot truly work if equitable learning opportunities are not ultimately provided for SEN students, but this does not mean that barriers to inclusion cannot come from them as well. For instance, some findings revealed SEN students who express concerns about finding the right balance between being as independent as possible and receiving the necessary

assistance, with many of them expecting not to be overly reliant on special support to achieve their goals. Also, concerns about acceptance and social dynamics have been identified, with SEN students worrying about negative interactions or bullying from their neurotypical peers, which could adversely impact their well-being and self-esteem.

SEN students' learning challenges

SEN students often encounter various learning barriers in classrooms that can impede their academic progress and overall educational experience. These barriers arise due to their widely diverse cognitive, physical, emotional, or behavioural characteristics.

SEN students can also face specific learning challenges when participating in foreign language instruction within mainstream classrooms. The linguistic, cognitive, and sensory demands of learning a foreign language can amplify the difficulties experienced by students with SEN. Understanding these challenges is crucial for educators to provide appropriate support and successfully create inclusive FLL environments. Table 5.1 compiles the most common learning and FLL challenges identified for SEN students.

Table 5.1: Common learning challenges of SEN students.

Area	Learning challenges	FLL challenges
Accessibility to basic/support services	• Physical barriers within the classroom (e.g., inaccessible equipment or materials) can hinder participation and engagement. • Insufficient availability of support services (e.g., SEN professionals or therapists) can hinder the provision of individualised assistance and interventions.	Idem.

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Table 5.1: Common learning challenges of SEN students. (Continued)

Area	Learning challenges	FLL challenges
Communication and social skills	• Speech/language disorders may result in struggles to express/understand instructions, while ineffective communication strategies can lead to frustration and hinder involvement. • Challenges in social interactions can lead to isolation and struggles to initiate conversations, create new relationships, or participate in group activities.	• Speech/language disorders have a greater impact when trying to communicate in a foreign language, with pronunciation, word retrieval, and expressive language skills being the most affected. • Collaborative language learning activities might pose challenges for SEN students with social interaction difficulties, as engaging in such activities can be anxiety-inducing for them. • Some SEN students (e.g., those with pragmatic language difficulties) may struggle with understanding idiomatic expressions, humour, and figurative language in a target foreign language. • Understanding social customs, cultural nuances, and context-specific language use can be challenging for SEN students, which might hinder their ability to communicate effectively in real-world situations.
Teaching strategies	• Traditional teaching may not effectively address the diverse learning styles/needs of SEN students, which can require differentiated instruction to grasp even basic concepts. • Tailored education plans might not be consistently implemented, leading to a lack of required support for academic success.	Idem.

Continued on next page

Table 5.1: Common learning challenges of SEN students. (Continued)

Area	Learning challenges	FLL challenges
Behaviour, emotions, and response to stimuli	• Behavioural and emotional challenges (common in SEN students) such as difficulties in managing emotions or adapting to changes, can impact the learning experience and lead to disruptions in the classroom. • SEN students with sensory sensitivity and attention-related challenges can become overwhelmed by sensory stimuli, affecting their focus and participation in educational activities (often worsened by classroom distractions).	• SEN students with sensory sensitivity might find the sensory experience of learning a foreign language overwhelming, with auditory stimuli, unfamiliar accents, and visual cues posing important challenges. • FLL can be particularly anxiety-provoking for some SEN students, which can prevent them from keeping up with the rest of the class. • Pessimistic prospects for SEN students learning a foreign language are commonly reported, which generally result in a substantial detriment to their motivation.
Cognitive functions	• Some SEN students might face barriers related to reading, writing, or mathematical skills, which can persist and hinder the development of other abilities.	• Some SEN students struggle with language processing, which can be exacerbated when learning a foreign language. They might have difficulties understanding and retaining new vocabulary, grammar rules, complex sentence structures, and orthographic processing. • FLL involves holding and manipulating multiple pieces of information simultaneously, and SEN students with working memory deficits might struggle to manage the cognitive load required for it. • FLL requires planning, organisation, and time management skills, and SEN students with executive functioning difficulties might struggle with tasks like organising vocabulary, planning written assignments, or managing study time.

Potential benefits of the AoA for SEN students learning a foreign language

The CEFR's Action-oriented Approach is a pedagogical framework with a focus on practical language use and communication in real-world contexts, which since its introduction has gained recognition for its particular effectiveness in language education for neurotypical students in mainstream classrooms. Even though there is scarce evidence of it having been widely used for the same purpose on the SEN population, no scientific evidence was found to support the opposite, this is, that SEN students cannot benefit from the use of the AoA to learn foreign languages like their neurotypical peers. In my opinion, and based on scientific studies included as the selected sources of evidence and other supporting documents, the most relevant potential benefits that the SEN population could obtain from the use of the AoA to learn foreign languages are those summarised in Table 5.2.

Table 5.2: Identified potential benefits for SEN population of using of the AoA to learn a foreign language.

Area	Benefit	Rationale
Skills	Lifelong Learning	The AoA equips learners with skills such as problem-solving, critical thinking, and adaptability, which are valuable beyond language learning and of utmost relevance for the SEN population.
	Education for Real-Life Interactions	The AoA enables learners to navigate real-life language challenges in practical situations. In the case of the SEN population, this is substantially relevant when, e.g., making inquiries and asking for assistance.
	Integral Language Development	The AoA integrates multiple language skills (listening, speaking, reading, and writing) within single tasks, mirroring language use in real life. This is very relevant for SEN individuals with social interaction challenges, as it gives them more opportunities for communication with a wider population.

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Table 5.2: Identified potential benefits for SEN population of using of the AoA to learn a foreign language. (Continued)

Area	Benefit	Rationale
Cognition	Cognitive Development	Through the AoA, language learning is embedded in purposeful tasks such as problem-solving and role-play activities, which enhances the cognitive engagement of language users (e.g., executive control and task switching). This is particularly relevant for some types of SEN individuals, such as those with cognitive/intellectual disorders.
	Genuine Language Use	The AoA places learners in authentic situations for language use, stimulating them to engage in meaningful tasks and interactions, which foments a deeper understanding of language as a tool for communication rather than an isolated set of rules. SEN individuals with social development disorders can benefit from this, for instance, by achieving a higher level of satisfaction in their social interactions.
Attitude	Confidence and Motivation	The AoA promotes intrinsic motivation by connecting language learning to the personal goals and interests of language users, who become more confident every time they can apply language skills in real tasks and contexts. For SEN individuals with language disorders, this helps them to develop communicative abilities.
	Autonomy	Language users take ownership of their learning processes by setting goals and making choices based on their needs and interests. This autonomy in turn enhances learners' metacognitive skills and self-regulation, substantially relevant for SEN individuals with emotional and behavioural disorders.

Answer to RQ3

Summarising what was exposed in the previous subsections, the answer to the third research question is that an ample list of barriers of diverse nature seems to be linked with the scarce exploration of the AoA for FLL purposes in SEN individuals. Also, a short discussion on the identified potential benefits of such an under-explored course of action suggests that the list

of missing opportunities is both ample and substantially relevant.

5.2 Limitations

Recalling the potential limitations of the proposed study (identified at the beginning of the study and listed in subsection 1.3.2), I selected the following as the most critical ones:

i) Not enough relevant results.

ii) Limited access to selected sources of evidence.

iii) Not enough time to perform the proposed study.

Concerning the first potential limitation, it is important to remark that although the initially explored search strategies failed to retrieve relevant results, several iterations of enhancements and fine-tuning allowed me to arrive at a satisfactory number of relevant sources of evidence to be analysed in the proposed study, nullifying the first limitation.

However, and directly touching on the second potential limitation, full access to all the identified sources of evidence was not ultimately possible, and ultimately 10 of them could not be included in the analysis. I am aware of the implications of this limitation in terms of not being able to have a full picture of the target research area, and thus a new iteration (or perhaps a follow-up study) would be necessary to have a better understanding of it.

Concerning the third potential limitation, and taking aside some unexpected schedule conflicts, the assigned time for the study was suitable.

5.3 Conclusions

Traditional FLL methods in their conventional form may not effectively meet the diverse learning styles and needs of SEN students, who usually require differentiated instruction, multi-sensory approaches, or hands-on learning experiences to grasp even basic concepts. Thus, identifying and addressing the associated barriers is essential for creating inclusive FLL environments where most of (or even all) the proven benefits of the traditional approaches for

neurotypical language learners could also be obtained in the case of SEN students. However, adapting existing mainstream FLL approaches to also suit the individual needs of SEN students is not an easy task, and requires both i) collaborative efforts from educators, support staff, families, and specialists, and ii) suitable orchestration strategies such as providing reasonable accommodations, offering personalised learning plans, promoting social skills development, and creating universally designed learning materials, so that a more inclusive and fruitful FLL experience for all students can be achieved.

It is in this context that my research project attempted to assess the application scope of the CEFR's Action-oriented Approach concerning its use to support the SLA process in SEN students. As a preliminary finding, I was able to identify that such scope is nowadays extremely narrow. However, an important complementary insight was also identified: the use of AoA-aligned SLA methodologies for such purpose has been reported in several studies, which somehow gives hope to a shift toward a more prevailing use of the actual AoA for that purpose in the near future. Additionally, a quick revision of the research objectives of abounding discarded grey literature (e.g., masters and PhD theses) indicates that several studies are currently being developed in that direction, which is very promising given the reported success of the AoA when used to aid the language acquisition processes of neurotypical students in FLL classrooms. Touching on this matter, and recalling that the AoA was introduced more than two decades ago, I have hypothesised that its narrow application to SEN students could perhaps be the result of mainstream FLL settings with low levels of inclusion. Following this hypothesis, I compiled the most relevant identified barriers, concerns, and challenges to be addressed. However, if that were not the case, the AoA could still be brought to specialised FLL environments focused on SEN students only, for which I also identified potential benefits of doing that. With all this, and regardless of the real reason for such a narrow application scope, the findings of the presented study should be seen as a clear and important opportunity to investigate in that direction.

With full awareness of the limitations of my research study, I see the following items as the most relevant ones to be addressed as future work in a new iteration of the proposed study (or a follow-up scoping review):

- Concerning the identified sources of evidence for which full-access was not possible (see the Appendix for details about such records), a clear next step concerns gaining full-text to them for their inclusion in the analysis and synthesis of results.
- Concerning the databases included in the study, additional dedicated database searches can be included (for instance, using EBSCOhost[1]) to i) collect potentially missed records not indexed in Google Scholar, and ii) to account for the examination of strictly scholarly sources.
- Concerning new search strategies, during the data charting process I identified the following candidate terms that seem worth exploring:
  - Alternative needs-related expressions: "learning disabilities", and "special needs education" (not to be confused with the term "special educational needs" already explored).
  - Alternative approach-related expressions: "project-based language learning", and "task-based language" (e.g., to cover **task-based language** learning, **task-based language** teaching, and **task-based language** education).

As a final thought, I would like to highlight the fact that it is not uncommon for FLL educators to report the importance of specialised training and support from specialists in inclusive education to equip them with effective strategies for addressing diverse language learning needs. Therefore, it is clear that continuous professional development comprising modern FLL approaches such as the CEFR's Action-oriented Approach (proven successful in other contexts) offers an alternative view worth exploring, not only to try to produce better strategies to navigate the identified challenges, but also to capitalise on the missed opportunities concerning foreign language education of SEN students (as those described in previous subsections of this manuscript).

[1] https://www.ebsco.com/products/ebscohost-research-platform

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A1 Appendix

A1.1 PRISMA-ScR Checklist

Tables A1.1, A1.2, and A1.3 show the checklist of the PRISMA-SrC[1] extension followed in the current research study. Both tables were built following the corresponding templates[2] and based on a public implementation[3] of the original PRISMA checklist.

Table A1.1: PRISMA-ScR Checklist, Part I.

Section and Topic	Item	Checklist Item	Reported in this manuscript?
TITLE			
Title	1	Identify the report as a systematic review.	Yes, on cover page.
ABSTRACT			
Abstract	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	Yes, on page ii.
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge. Explain why the review questions/objectives lend themselves to a scoping review approach.	Yes, on page 6, subsection 1.2.2.

[1] http://www.prisma-statement.org/Extensions/ScopingReviews

[2] http://www.prisma-statement.org/documents/PRISMA-ScR-Fillable-Checklist_11Sept2019.pdf

[3] https://www.overleaf.com/latex/templates/prisma-2020-checklist/fpxwjvycfgtv

Table A1.2: PRISMA-SrC Checklist, Part II. (Continued from Table A1.1)

Section and Topic	Item	Checklist Item	Reported in this manuscript?
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	Yes, on page 10.
METHODS			
Protocol and Registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	No.
Eligibility Criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	Yes, on page 45.
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	Yes, on page 48.
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Yes, on page 50.
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	Yes, on page 60.
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	Yes, on page 61.
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Yes, on page 61.
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	No.
Synthesis of results	13	Describe the methods of handling and summarising the data that were charted.	Yes, on page 61.

Table A1.3: PRISMA-SrC Checklist, Part III. (Continued from Table A1.2)

Section and Topic	Item	Checklist Item	Reported in this manuscript?
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Yes, on page 63.
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Yes, on page 65.
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	No.
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Yes, on page 66.
Synthesis of results	18	Summarise and/or present the charting results as they relate to the review questions and objectives.	Yes, on page 73.
DISCUSSION			
Summary of evidence	19	Summarise the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	Yes, on page 79.
Limitations	20	Discuss the limitations of the scoping review process.	Yes, on page 91.
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	Yes, on page 91.
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	No funding received.

A1.2 Supplementary tables for the Search Strategy

Table A1.4: All individual search expressions obtained from the rule b1 AND b2 AND b3 for all b1 in (B1), b2 in (B2), and b3 in (B3).

Search expressions
"second language acquisition" AND "special educational needs" AND "action oriented approach"
"second language acquisition" AND "special educational needs" AND "action based approach"
"second language acquisition" AND "additional educational needs" AND "action oriented approach"
"second language acquisition" AND "additional educational needs" AND "action based approach"
"second language learning" AND "special educational needs" AND "action oriented approach"
"second language learning" ‘special educational needs" AND "action based approach"
"second language learning" AND "additional educational needs" AND "action oriented approach"
"second language learning" AND "additional educational needs" AND "action based approach"
"second language teaching" AND "special educational needs" AND "action oriented approach"
"second language teaching" AND "special educational needs" AND "action based approach"
"second language teaching" AND "additional educational needs" AND "action oriented approach"
"second language teaching" AND "additional educational needs" AND "action based approach"
"second language instruction" AND "special educational needs" AND "action oriented approach"
"second language instruction" AND "special educational needs" AND "action based approach"
"second language instruction" AND "additional educational needs" AND "action oriented approach"
"second language instruction" AND "additional educational needs" AND "action based approach"
"foreign language acquisition" AND "special educational needs" AND "action oriented approach"
"foreign language acquisition" AND "special educational needs" AND "action based approach"
"foreign language acquisition" AND "additional educational needs" AND "action oriented approach"
"foreign language acquisition" AND "additional educational needs" AND "action based approach"
"foreign language learning" AND "special educational needs" AND "action oriented approach"
"foreign language learning" AND "special educational needs" AND "action based approach"
"foreign language learning" AND "additional educational needs" AND "action oriented approach"
"foreign language learning" AND "additional educational needs" AND "action based approach"
"foreign language teaching" AND "special educational needs" AND "action oriented approach"
"foreign language teaching" AND "special educational needs" AND "action based approach"
"foreign language teaching" AND "additional educational needs" AND "action oriented approach"
"foreign language teaching" AND "additional educational needs" AND "action based approach"
"foreign language instruction" AND "special educational needs" AND "action oriented approach"
"foreign language instruction" AND "special educational needs" AND "action based approach"
"foreign language instruction" AND "additional educational needs" AND "action oriented approach"
"foreign language instruction" AND "additional educational needs" AND "action based approach"

Table A1.5: All individual search expressions obtained from the rule b1b3 AND b2 for all b1b3 in (B1B3), and b2 in (B2).

Search expressions
"action oriented second language acquisition" AND "special educational needs"
"action oriented foreign language learning" AND "special educational needs"
"action oriented foreign language teaching" AND "special educational needs"
"action oriented foreign language instruction" AND "special educational needs"
"action oriented second language acquisition" AND "additional educational needs"
"action oriented foreign language learning" AND "additional educational needs"
"action oriented foreign language teaching" AND "additional educational needs"
"action oriented foreign language instruction" AND "additional educational needs"

Table A1.6: All individual search expressions obtained from the rule b1s AND b2 AND b3s for all b1s in (B1s), b2 in (B2), and b3s in (B3s).

Search expressions
"second language" AND "special educational needs" AND "action oriented"
"second language" AND "special educational needs" AND "action based"
"second language" AND "additional educational needs" AND "action oriented"
"second language" AND "additional educational needs" AND "action based"
"foreign language" AND "special educational needs" AND "action oriented"
"foreign language" AND "special educational needs" AND "action based"
"foreign language" AND "additional educational needs" AND "action oriented"
"foreign language" AND "additional educational needs" AND "action based"

Table A1.7: All individual search expressions obtained from the rule b1s AND b2m AND b3s for all b1s in (B1s), b2m in (B2m), and b3s in (B3s).

Search expressions
"second language" AND "neurodiverse" AND "action oriented"
"second language" AND "neurodiverse" AND "action based"
"second language" AND "neurodivergent" AND "action oriented"
"second language" AND "neurodivergent" AND "action based"
"foreign language" AND "neurodiverse" AND "action oriented"
"foreign language" AND "neurodiverse" AND "action based"
"foreign language" AND "neurodivergent" AND "action oriented"
"foreign language" AND "neurodivergent" AND "action based"

A1.3 Identified sources of evidence without full-text access

Table A1.8: Identified sources of evidence without full-text access. **REMARK:** Although record Whyte (2015*a*) is a chapter inside record Whyte (2015*b*), they are considered separate sources of evidence since the latter record seems to have other relevant sections beyond the former record.

Title	Reference
BOOK CHAPTERS	
Pupil learning in design and technology	Owen-Jackson (2015)
Collaborative action research and communities of practice	Whyte (2015*a*)
Introducing CLIL modules to primary school learners: A multi-perspective study	Vogt (2021)
Translocating language teacher education: The way forward	Balaman (2023)
Guidelines for inclusive schools: Case studies from Finland	Mihajlovic (2023)
BOOKS	
Introduction to dyslexia	Peer and Reid (2013)
Implementing and researching technological innovation in language teaching: the case of interactive whiteboards for EFL in French schools	Whyte (2015*b*)
Extramural English in teaching and learning: From theory and research to practice	Sundqvist and Sylvén (2016)
Teaching English: Differentiation and individualisation	Eisenmann (2019)
English for young learners in Asia: Challenges and directions for teacher education	Zein and Butler (2022)