Preparing for inclusive EFL classrooms: Lessons learned from and guidance for inquiry-based approaches focusing on neurodiversity

Carolyn Blume (Technical University of Dortmund)
Jules Buendgens-Kosten (Goethe University Frankfurt)
Rieke Diekhoff (Goethe University Frankfurt)
Raúl Enrique García López (Technical University of Dortmund)
Nicole Gotling (University of Vienna)
Julia Hüttner (University of Vienna)
Marlies Petritsch (University of Vienna)
Michelle Proyer (University of Vienna)
Manuela Schlick (University of Vienna)
Geert van Hove (Ghent University)
Authors listed in alphabetical order.

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1. Introduction

Are you a teacher trainer planning to implement a research class on neurodiversity/the inclusive classroom and looking for inspiration?

Then you are holding the right document in hand.

Our guide will walk you through our experiences working on neurodiversity in the EFL – teaching setting, introduce you to some basics of inquiry-based learning (IBL), and help you identify pitfalls in implementing it.

This report, based on the ELLeN project (Erasmus+ KA2 Strategic Partnership, grant agreement number: 2020-1-DE01-KA203-005696, 2021-2023) looks at inquiry-based learning (IBL) in the context of teacher education. It will examine the process of conducting IBL with pre-service teachers on the topic of neurodiversity (see chapter 2.1 and 2.2) in EFL instruction. This report builds on the experiences made through the ELLeN project, in which pre-service teacher education students in Germany and Austria engaged in an IBL interview project with neurodivergent individuals and stakeholders in inclusive education.

For materials used, see the project website: http://ellen-project.eu/
or scan the code:

The guide will address the development of university students' (a.k.a. pre-service teachers) understandings of and attitudes towards IBL and neurodivergent learners; the parallels and differences among the students' understanding and attitudes in the different international partner institutions; and the needs and processes related to incorporating the voices of neurodivergent individuals. The report will serve as an empirical evaluation, conducted by incorporating a range of data and assessed using a mixed-methods approach that takes into consideration the unique nature of the data (first person accounts by neurodivergent learners) that has been collected within a specific context (i.e., through implementing IBL practices in teacher education, see section 2.1 **Inquiry-based learning**) for a specific context (heterogeneous EFL instruction in two countries).

The following chapters will offer short summaries and reflection inputs in boxes to enable quick insights and enable you to choose relevant contents.

Best of luck with your classes!

2. Setting the scene: IBL and Neurodiversity

This section aims to help you familiarize yourself with the concept of IBL and its role within teacher education. Furthermore, you will learn more about the state of discourse around the emerging concept of neurodiversity.

Questions tackled are:
What is IBL?
How can IBL help you prepare teacher trainees for a diverse classroom setting?
What do we mean by Neurodiversity?

2.1 Inquiry-based learning

The origins of inquiry-based learning (IBL) can be traced back to Dewey's ideas regarding the need to transcend the practice of decontextualized rote learning. While a definitive scholarly definition of inquiry-based learning is difficult to pin down, it is safe to say that IBL is an instructional approach that requires the active involvement of students in the exploration of a problem or question, and it is designed to facilitate the development of students' critical thinking and research skills in the process of answering that question. IBL stands in the vicinity of other didactic methods, such as problem-based learning, project-based learning, student research, guided inquiry, and others (Levy et al., 2013, p. 389; Spronken-Smith & Walker, 2010, pp. 725–726).

With its origins in the higher education reforms of the 1960s (Mieg, 2019b, p. 4), predominantly in science education (Justice et al., 2009, p. 843), IBL has expanded to various subjects at both the secondary and tertiary levels. In the German case, IBL has permeated most areas of higher education (see Mieg, 2019a), partly as a response to the Bologna reform, which undermined the relevance of undergraduate degrees and reduced them to the level of "school instruction" (Mieg, 2019b, p. 3).

There are various definitions and types of IBL. While we will not discuss these in detail, we will describe some of the overarching principles that lie at the core of IBL. Spronken-Smith and Walker (2010) list five features that most scholars agree on regarding the nature of IBL:

1. all inquiry-based learning experiences are driven by a question or a problem;
2. in IBL, knowledge is constructed rather than discovered;
3. learning takes place by doing;
4. IBL is an attempt to implement student-centered didactics, whereby the role of the teacher changes to that of a facilitator;
5. students are expected, encouraged, and empowered to take responsibility for their own learning process.

The last item in this list is noteworthy since it is transversal to the others. In IBL classrooms, autonomy is both a means and an end. From the beginning, students are given the responsibility of identifying a question or a problem and selecting the methods that they will use to collect and analyze the data needed to answer it. In most cases, IBL classrooms are organized in groups so that

students can work on their selected problems while contrasting their personal views and assumptions with those of their peers and practicing interdisciplinary skills such as leadership, collaboration, communication, and reflection. Developing these skills and carrying out these processes requires educators to provide continuous scaffolding. Scaffolding in IBL occurs in different ways and at different stages of the learning process. For example, sometimes teachers provide the specific problems or questions for students to investigate. Other times, students are given the data that they need to analyze or suggested the methods for collecting it. They may also be given specific models to use as well as specific instructions on how to interact in guided work group and class activities. Educators decide the level and type of scaffolding that is best suited for their classrooms based on the particular characteristics of their student population and the resources they have at hand. However, instructors using IBL always provide this scaffolding in ways that enhance student autonomy as the course or seminar progresses.

As mentioned earlier, IBL allows students to both construct new knowledge and to develop research skills. In teacher education, the latter is emphasized. Fichten (2019) explains that the proliferation of IBL in teacher education programs in Germany follows the need to achieve at least three objectives: adopting a scholarly approach to professionalization, developing an exploratory attitude in professional decision-making, and fostering an investigative mindset. This means that teacher education programs must ensure that pre-service teachers acquire the theoretical knowledge necessary to analyze and understand the teaching and learning that takes places in their future classrooms as well as the skills and attitudes necessary to tackle the classroom situations that cannot be resolved by applying theoretical knowledge alone. When such uncertainties arise, teachers should be able to adopt an attitude of exploration and curiosity and use the skills that allow them to examine their teaching contexts, reflect on their own beliefs and practices, generate alternative solutions, and transform their praxis. Such experiences can lead to the creation of new didactic knowledge and, consequently, to their own professional development.

Despite a plethora of research on IBL in teacher education, there remain gaps that this output addresses. First of all, a great deal of the published research on IBL in teacher training exists in national contexts (and is uneven in scope) and limits efforts to identify transnational issues relating to the structure of teacher education programs. Secondly, much of that research focuses on action research, that is, in the context of teaching practice. While there are indications that IBL can be, and is, successfully implemented from the earliest stages of university-based teacher training (Fichten, 2019), most recent empirical work has focused on IBL as a tool to enhance reflexivity in teaching placement, in its myriad permutations that are not easily transferable from one national context to another (for Germany: Schocker-v. Ditfurth, 2001; Benitt, 2017; for Austria: Posch et al., 2009). Thirdly, there is scant evidence documenting the use of IBL incorporating the voices of neurodivergent learners. Given the increasing advocacy of participatory disability research (Flieger, 2009; Hermes & Rohrmann, 2006), it is imperative that pre-service teachers incorporate this demographic in their examinations of learners' needs in their own voices. Finally, IBL as it relates to preparing teachers of English as a foreign language (EFL) has yet to consider the needs of neurodivergent learners in a range of settings. Given the dominance of English as a *lingua franca* in both online and offline contexts, addressing the language learning needs of neurodivergent learners is imperative to facilitating their participation in political, economic, social, and civic discourses (Pennycook, 2017).

In this project, IBL was used in a rather structured manner. The pre-service teachers were given a fairly broad topic to investigate (neurodiversity) and were told to use interviews as a method of data collection. By engaging in this inquiry process, the pre-service teachers created their own understanding of the needs and experiences neurodivergent students in the EFL classroom, and they gained insights into the gap that exists between inclusive education policies and the realities of schools.

By detailing the processes, attitudes, and outcomes of this contextualized pre-service teaching course, the aim of this cross-national report is trifold. In an answer to the aforementioned gap in the literature, the report gives insight into the researchers', teachers', and pre-service teachers' experiences made from applying and engaging in an inquiry-based approach with a course about neurodiversity and the needs of neurodivergent students learning English that was designed for pre-service teachers of English (university students who are preparing to become EFL teachers). In addition, it also relays the experiences, attitudes, and knowledge of the pre-service teachers from throughout the duration of the course in relation to their perceptions and experiences with the IBL format, the topics of neurodiversity and neurodivergent learners, and their future careers in the teaching profession. What emerges are the lessons that have been learned along the way from the researchers, teachers, and pre-service teachers who participated in the project.

2.2 Neurodiversity

The ELLeN project draws on the notion of neurodiversity (ND): a non-deficit perspective on heterogeneity of processing styles. In using neurodiversity as the central concept, we are actively drawing on a term that was developed within a minority neurotype community that is specifically linked to the mailing-list "InLiv", which had attracted predominately autistic users (Dekker, 2020). The term neurodiversity itself was most likely coined within that mailing list by Judy Singer (Singer, 2017), who was also the first person to use this term in an academic publication (her Honor Thesis; Singer, 1998) as well as a chapter in an edited volumed based on it (Singer, 1999). The first usage in print can be attributed to another InLiv user, Harvey Blume (Blume, 1998).

Neurodiversity as a concept frames the heterogeneity of processing styles in a similar vein as biodiversity frames the breadth of life in an ecosystem: as a positive feature of a group. As Murray phrases it:

> One aspect of human diversity is the variety of processing styles we have: what we call neurodiversity. Like other kinds of diversity, it is probably a net positive, but it comes with serious challenges for those who are seen as divergent. (Murray, 2020, p. 105)

Beyond this conceptual core, though, usage of the term varies, and it is also actively contested. Some users use neurodiverse both to refer to the diversity within groups and to an individual who contributes to this diversity by being a member of a minority neurotype, while others prefer the term neurodivergent for the latter. In this report, and in other documents of the ELLeN project, we will maintain this distinction on the level of adjectives (i.e., when referring to neurodiverse groups and neurodivergent individuals).

There is a political dimension inherent in most uses of the term. The discourse on neurodiversity is strongly influenced by the social model of disability and situates (many) challenges experienced by individuals of minority neurotypes in inaccessible infrastructures built for members of the majority neurotype (Baker, 2011, p. 22). Neurodiversity is not neutral regarding the negative effects of this on neurodivergent people. According to Baker, "[g]roups dedicated to neurodiversity evolved to help promote this interpretation of living fully with neurological differences in the face of potentially overwhelming messages to the contrary" (2011, p. 20). It should be noted, though, that some authors make a terminological distinction here between neurodiversity and the neurodiversity paradigm, with the first referring to the existence of different processing styles and the second to the positive connotations and associated political demands (Walker, 2021, pp. 34–35). While this is a valuable distinction, it is not one we are maintaining throughout the texts created within the ELLeN project.

3. Getting Inspired: Description of the settings and courses

This section describes the courses that were held at three different institutions. In addition to the details of the courses, a further section relays the experiences of the researchers-as-teachers and course creators.

How do these various experiences from different contexts help inform the choices you need to think about when designing your course?
What course design makes sense in your context?

Within this project, courses on the relevance of neurodiversity (ND) for English language teaching (ELT; see Bündgens-Kosten & Blume, 2022) were taught within three university-level pre-service teacher programs in two different countries. During the winter term 2021, one course each was taught at Frankfurt and Dortmund, Germany, and two courses in Vienna, Austria; in the summer term 2022, one course was taught in Frankfurt; and in the winter term 2022/2023, one course was taught in Frankfurt.[1] All courses were located primarily in Masters' level programs and designed for teacher education students in ELT (pre-service teachers of English).

Course titles and basic information:

Winter term 2021/2022:

1. "Exploring Digitally-Mediated English Usage Among Neurodivergent Learners" (TU Dortmund), 20 students. Prof. Dr. Carolyn Blume received an "IDEAward" teaching award for this seminar.
2. "Neurodiversity in the EFL classroom" (Goethe University Frankfurt), 16 students

[1] The course format has also been trialed, in a modified format, at University of Maryland, Baltimore County, USA, in the winter term 2023. This course, however, is not part of this report.

3. "Neurodiversity and ELT: researching and supporting individual learning trajectories" (University of Vienna), 2 classes, 3A: 18 students, 3B: 12 students

Courses 1 and 2 were co-taught by Prof. Dr. Carolyn Blume (TU Dortmund) and Dr. Jules Bündgens-Kosten (Goethe University Frankfurt). Courses 3A and 3B were taught by Prof. Dr. Julia Hüttner (University of Vienna). All courses were partially affected by university measures regarding COVID-19.

Summer term 2022:

4. "Neurodiversity in the EFL classroom" (Goethe University Frankfurt), taught by Dr. Jules Bündgens-Kosten, 19 students

Winter term 2022/2023:

5. "Neurodiversity in the EFL classroom" (Goethe University Frankfurt), taught by Dr. Jules Bündgens-Kosten, 19 students

All three institutions prepare future (i.e., pre-service) teachers of English for the mainstream school sector. In Austria, the pre-service teachers of this course were attending an academic program at the University of Vienna to be qualified for all school types catering to grades 5–13; in Germany, the courses at the Technical University Dortmund and Goethe University Frankfurt were open to pre-service teachers from various licensure tracks, qualifying the participants for different school types (see table below). At all sites, some pre-service teachers specialized (either as part of their sole degree or part of a dual degree) in inclusive pedagogy/special education.[2]

Participants who will be licensed as	Primary teachers	Special educators	Lower secondary (grades 5 through 10)	Upper secondary (grades 11 through 13)	Vocational colleges	Mixed-track schools
TU Dortmund	X	X	X	X	X	X
Goethe University		X	X	X	X	X
University of Vienna			X	X	X	X

School authorities in both Austria and Germany are legally obligated to implement inclusive education; however, the actual implementation of inclusive policies and classrooms equipped with resources for diverse students and teaching sensitive to diversity varies. There are still so-called special needs schools (referred to as *Zentren für Inklusion und Sonderpädagogik* or *Sonderschulen* in Austria or *Sonder-* or *Förderschulen* in Germany), and most current pre-service teachers did not themselves attend (overtly) inclusive classrooms (Blume & Gerlach, in press).

[2] An overview of the special education system in Germany can be found here: https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/dossier_en_ebook.pdf

The basic principles and materials of the different courses were designed by the ELLeN project team and adapted to the curricular needs of the three participating institutions.[3] The final revised materials as well as a teacher's guide are available on the project website (ellen-project.eu). The overarching aim of these courses was to prepare pre-service teachers for the neurodiverse reality of ELT classrooms while familiarizing them with the research process through inquiry-based learning. Such preparation can only ever be partial, so deciding what the main aims of the courses would be was crucial. We focused on the need to raise pre-service teachers' awareness of neurodiversity, to help them understand that different sources of information offer varying kinds of knowledge, and to model and explain the need for including and listening to the voices of neurodivergent individuals. Sources used included individual voices videos, webcomics, poetry, research articles, young adult fiction, scholarly books, autobiographies, and so on. Thus, aiming to increase teacher expertise in the area of inclusion was framed within an explicit treatment of issues of representation and voice (e.g., by discussing the disability rights movement's exhortation of "nothing about us without us").

At all three sites, neurodivergent guest speakers were invited to lecture to the pre-service teachers and answer questions. Additionally, in Vienna, a mentor and expert teacher focusing on autism was invited to give a guest lecture, explaining her role and experience in supporting the development of inclusive and autism-friendly classrooms to the pre-service teachers. The original plan for the course was for the pre-service teachers to become familiarized with the purposes and processes of inquiry-based learning, and then for them to apply these competencies in interviews they conducted with neurodivergent English language learners about the latter group's experiences, especially about their experiences while at school. For a number of reasons, this proved difficult at all three sites, not least of all due to the ongoing COVID-19 pandemic, which affected access to schools and restricted interaction.

3.1 The emergent project design, different pathways, and tensions

Some changes to the original plans were necessary. First, was how to deal with the choice of interview partners. At one of the Austrian inclusive schools willing to participate, the teachers made a very clear demand that no learners were to be specifically identified as neurodivergent; instead, the pre-service teachers were to consider the entire setting of the inclusive classroom (see section 4.1 **Participatory teaching** on participatory research). Thus, pre-service teachers in the Austrian version of the course interviewed school teachers and school students in these inclusive classrooms, but they did not know whether any of the individuals identified as neurodivergent unless the interviewees themselves brought this up during the interview. The resulting interviews themselves led to interesting insights into the dynamics of (inclusive) ELT classrooms that emphasized the need to consider neurodiversity as an overarching aspect to accommodate, rather than as only an individual issue. In terms of the research questions and interview outlines created by the pre-service teachers, the fact that pre-service teachers were unaware of whether or not their interviewee identified as or had been diagnosed as neurodivergent meant that, at times, broader topics or (ideal) inclusive classrooms were focused on. One of the participating schools asked for learners to always be interviewed in pairs, which changed the original format of the interviews and partly resulted in

[3] To ensure quality of materials, an autistic activist and advocate reviewed course materials. All errors and deficiencies remaining are the responsibility of the ELLeN consortium.

interviews that needed to divide their time and questions within the same interview between two sets of individuals, research interests, and questions needed to be addressed within the same interview (although this also meant that the pre-service teachers also had more exposure to different people and topics).

At the two German sites, the interview partners identified as neurodivergent, or were diagnosed as belonging to a minority neurotype, which allowed the interviewers to focus, in part, on specific research interests that reflected the different backgrounds and experiences of the informants. Interviewees were recruited through personal networks (e.g., of the course instructors or students). Participating pre-service student seemed to find this, overall, less threatening but which also created a certain bias since this limited the range of voices and experiences involved in the study to ones from known networks. Most interviewees were adults, so, in the interviews, they were often able to reflect on their educational experiences from a certain (emotional and temporal) distance.

In the joint course of Dortmund and Frankfurt, originally, there was no plan to cooperate in the seminar itself, but we took advantage of the potential afforded by the pandemic and added another, collaborative dimension: The students gained insights from two different lecturers' perspectives and had the opportunity to work with students from another university that had – even though it is in the same country and only a few hundred kilometers away – different norms and expectations. This created a richness to the discussions as differences were highlighted in contrast to one another. The guest lecturers from outside the field of TEFL, especially Prof. Dr. Michelle Proyer and Prof. Dr. Geert van Hove, likewise added another dimension of complexity.

There is also a bias inherent in our approach in both countries in that we relied on informants with communicative and comprehension skills that required minimal technological or interpersonal support. In that regard, we did not include any informants who use augmentative and alternative communication (AAC), who communicate using easy-to-read[4], or who use assistants.

Finally, although managing the pre-service teachers' interview processes was not a "deviation" from the original plan, we were surprised to find that they needed more guidance than anticipated. We found that many of the pre-service teachers were inexperienced with creating, organizing, conducting, and analyzing interviews, and these tasks became time-consuming. In addition, time was also required during the course in order to address all of the issues regarding data privacy, ethical safeguards, and technical requirements (see The ELLeN Group, 2024a).

4. Positioning yourself, your research and the teaching: Processes related to incorporating the voices of neurodivergent individuals

This section introduced the notion of participation, and applies it to the teaching context. It makes suggestions how to increase participation in teacher education teaching.

How can you model elements of participatory research in your teaching?

[4] For more information about easy-to-read and inclusive education, see: https://www.inclusion-europe.eu/easy-to-read/.

In which ways can you include community voices in your teaching and research?

4.1 Participatory teaching

Questions of participation have been discussed in many contexts, including questions of participatory research. Participatory research traditionally refers to an interactive process combining action and reflection that aims to both understand and change social reality (von Unger, 2013, p. 162). The importance and potential of participatory approaches to researching neurodiversity are discussed, for example, by Fletcher-Watson et al. (2018). In this section, we make the argument that participatory approaches can also be useful for teaching, here: for teacher education seminars.

Students currently being prepared in higher education to become teachers (i.e., pre-service teachers) are expected to be able to work in very diverse classrooms. The teachers, on the other hand, often do not reflect the composition of the student body, especially with much lower numbers of teachers. This is due to a number of factors, including stratified school systems that hinder specific students from attaining higher education (Blume & Gerlach, in press; Kolleck, 2023) and the non-recognition of knowledge from, for example, internationally educated teachers. Life worlds of teachers and learners are therefore often quite unrelated but can be reframed by participatory takes both within your research and teaching. Embedding your teaching and student-led research activities within this scope of participatory ideas will further the idea of inclusion.

When we encounter diversity, specifically with persons with disabilities, it appears that the attitude and position “the public” adopts regarding these unknown, diverse persons is often dependent on how they are represented in the media (Goethals et al., 2022). Indeed, children, youth, and adults in many countries are still accommodated in separate circuits of education, employment, and living (see, e.g., Deutsches Institut für Menschenrechte, 2022). This separation contributes to mutual alienation and reinforces the exclusion of disabled individuals and marginalized groups.

In recent decades, and certainly since the ratification of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD; United Nations, 2006), national governments have been obligated to abandon the separation described above, and more and more inclusive policies based on a human rights paradigm are being adopted. This “turn” includes, among other things, the expectation that no policy or program should be decided or developed without the full and direct participation of members of the groups involved in those programs. Oftentimes, this expectation of inclusive participation is referred to through the expression “nothing about us without us” – a fundamental principle of disability rights movements, whose popularity is demonstrated by the fact it was used by the United Nations in 2004 as the theme of the International Day of Persons with Disabilities.

Teaching based on the principles of “nothing about us without us” requires educators to address the challenges of participatory research and the co-construction of curricula and teaching programs. Participatory approaches are characterized by lived experiences, life stories, narratives, and experiential expertise. It is notable here that this input can be realized in different ways, which can be shown with these different examples:

1. Some educators bring in documentaries or first-person books about the lives of neurodivergent people;
2. Some educators invite neurodivergent individuals to talk to their students;
3. Some educators prepare their students to meet neurodivergent citizens, making sure they reflect together about, for example, their schooling history;

4. Some educators maintain contact with a group of neurodivergent individuals to receive feedback on their ideas as they are preparing their teaching program;
5. Some educators co-teach with neurodivergent team members;
6. By collaborating with neurodivergent co-teachers, relying on first-person stories, and/or organizing personal contact with neurodivergent individuals, educators make sure that these collaborations and learning experiences become an ongoing/integrated/sustainable part of the curriculum.

Within all these examples of practices, there is an expectation that such actions really become part of the program in a sustainable way. The six possible steps listed here are inspired by Arnstein's ladder of participation (see Figure 1).[5] This model has proved useful for years because it provides a (visual) representation of possible actions, ranging from exclusion to superficial or meaningful participation within projects that claim to pursue participation as a primary objective (The Citizen's Handbook, n.d.; von Unger, 2013).

Figure 1. Degrees of Citizen Participation[6]

In these attempts to include neurodivergent individuals and perspectives in a sustainable way, we should not lose sight of the fact that these actions are also of great importance for pre-service teachers as they might discover neurodivergent role models for themselves. This is only one of the reasons why students might think they are alone in an environment that does not always appear to be open to them through inclusive policies, thus leading to more sensitivity towards the needs of neurodivergent students.

We would also like to add that working with a specific group of people – as we are doing here with neurodivergent individuals – can mislead some students. There is a danger that some students might think that a "label" is all-explanatory and/or that all people with the same label benefit from the same kinds of support and accommodations (see Borthwick-Duffy et al., 1996). It remains

[5] Arnstein, writing in 1969 about citizen involvement in planning processes in the United States, described a "ladder of citizen participation" that showed participation ranging from high to low (1969, pp. 216–224).
[6] Figure 1 is adapted from "A Ladder of Citizen Participation" by S. R. Arnstein, 1969, *Journal of the American Institute of Planners*, *35*(4), p. 217 (https://doi.org/10.1080/01944366908977225).

important to continue to see neurodivergent people with the many layers of their identity and not just focus on the neurodivergent axis in an intersectional whole.

4.2 Potentials, hurdles, and ethical challenges of participatory approaches

Participatory research – and, we would argue, also participatory approaches to teaching – have the potential of lowering barriers and including diverse voices in research. Nevertheless, it also comes with a lot of challenges that need to be considered when planning, implementing, and evaluating such processes. First off, it has to be pointed out that a one-off (participatory) research occasion or element is not enough to have and foster an understanding of the needs of diverse groups or stakeholders. If applied selectively or in an unsustainable manner, participatory research can cause more harm than help for research, development, or teaching processes, in particular because limited and selective participatory research can lead to tokenism and oversimplification.

Participatory research is also a comparatively time-consuming endeavor, a fact that should be kept in mind when making decisions in this regard. Especially in terms of the complex, multi-layered, and ongoing process of participatory research, the following aspects should be considered at every stage of the planning, implementation, and evaluation phases:

- Ethics

Research ethics within participatory research tend to be of even more importance and in need of more thorough consideration than in non-participatory research settings. The needs of the participants are to be considered at every stage; thus, voluntary participation, anonymity, and well-being must be secured throughout every step of the research process. In this way, research ethics should be in line with relational ethics.

Relational ethics can be situated as the "smaller sister" of procedural or research ethics. It has its origins in the feminist ethics of care and recognizes that objective and rational moral reasoning cannot always advise on the "right" way to proceed. What is "right" emerges within the dynamics of relationships and depends on the time, place, and people involved. Relational ethics defines ethics within respectful engagement that can be characterized by the recognition, support, and acceptance of others and their experiences (see, e.g., Ethical Research Involving Children, 2020). Along with Bergum and Dossetor (2005), Pollard (2015), and Evans (2004; see also Tomaselli et al., 2020), relational ethics is described through a number of characteristics that are paramount in caring (research) relationships: engaged relationships, mutual respect (responsibility to the other), embodied knowledge (knowing the values, the needs, the preferences of the others), interdependency with the environment (the relationship with the contexts), and making sure "uncertainty" gets enough space.

In light of these relational ethics and research ethics as well as the context of the project, participants in our initiative had the possibility to cancel the collaboration or to change their mind about the use of data material provided. These open possibilities and awareness of the individuals' emerging needs, as well as the possible tensions and complex realities that may occur, need to be considered in and alongside ongoing consensual procedures.

- Not all projects are appropriate for participatory research approaches

Some topics or research approaches might not be suitable for participatory research. Participation cannot be forced and should not be implemented only in order to address funding requirements or

serve anyone's personal professional development at the expense of the individuals whose experiences are being centered.

- Pragmatic constraints

Researchers should always consider time and network management at all times. The following quote points to the fact that one of the main considerations when deciding whether or not to use participatory approaches relates to time-related limitations:

> We are, in essence, working in an overloaded, "hurry-along" (Dadds, 2001) context, where time has to be used wisely. Research must support us in these conditions, not exacerbate the difficulties. In addition, research is as politically important as ever it was, for these centralist, "hurry-along" conditions have the tendency to mould us into obedient technical deliverers of others' political initiatives, engaging mostly in task-orientated work. Hurry-along reduces time for deeper thought and democratic critique as we seek to figure out the political game and learn how best to play it for the purpose of institutional survival. (Dadds, 2014, p. 30)

Good care of networks and collaborative structures are vital in the participatory research context. The same holds true for the well-established assignments of roles: Who holds responsibility for what part of the research process and who is in charge of which role throughout it should be made clear and reinforced. This needs to be reflected upon regularly.

- Roles and responsibilities

In terms of planning for a successful and well-coordinated research process that achieves its stated objectives, roles need to be agreed upon. Questions such as the following can be of help: Who acts as a researcher, who as a co-researcher, who is willing to give support, and who needs support? Who will be involved in which part of the research process? Who is part of the formal research team and gets paid what? Etc.

- Negative consequences and risks

In the case of participatory research, more often than not, we are dealing with challenging and personal topics. These touch upon social inequality and thereby hold a high risk of leading participants to relive traumatic experiences or reflect upon their role in society. Steps need to be monitored and reconfirmed at all stages of the process.

4.3 Gaining access and conducting interviews

Keeping in mind the aims and various constraints of the project and courses, the following relays the considerations and processes undertaken to gain access to and interact with the interview participants.

4.3.1 Austria

4.3.1.1 Vienna, winter 2021/2022:

Generally, gaining access to classrooms in Austria for doing research remains an often tedious and complicated endeavor. For the course in Austria, nine learners and young adults, five English

language teachers, and four educational specialists on questions of inclusive teaching could be interviewed. There were a handful of institutions involved:

- a lower secondary school (*Mittelschule*, urban context)
- an upper secondary school (*Oberstufenrealgymnasium*, suburban context)
- a secondary grammar school (*Gymnasium*, urban context)
- an education directorate (*Bildungsdirektion*)

All participating institutions and persons were chosen because of previous contact one the researchers had with them or their institutions through research or teaching projects. The assumption was that schools that explicitly declare inclusion as one of their core values would be particularly open for participating in the research project as well as be used to the preparation, communication, and organizational processes involved in doing research. All of the institutions actually cooperated with an Austrian institution of higher education for evaluating the success and the different perspectives on inclusive practices at these schools and with administrative representatives.

The communication with schools was organized in the following sequence:

1. A letter was sent to the school's headteacher with general information about the project together with a letter to the English language teachers at the same school.
2. In the case of lower and secondary schools, there was a meeting with members of the school board (including a managing director, headmasters of the schools, one PI of the project)
3. Letters were sent to the respective teachers, learners, and parents together with consent forms (formulated by the pre-service teachers within the course).

The most intensive communication happened with the lower secondary school, where all lessons are held and led collaboratively by one subject teacher and one special education teacher. The teachers (four main teachers for the main subjects such as Math, English, German, and Special Education) have regular biweekly meetings at which they discuss issues concerning the class. The teacher team for the class that participated in the project requested that:

- they did not want to identify specific learners as neurodivergent;
- they wanted to let the learners participate only in pairs;
- and the two participating English language teachers could do the interview together.

In line with our framework of participatory research, we readily accepted these decisions.

In terms of communication with the schools, it has to be mentioned that, in Austria, none of the schools disclosed the status/label of any of the students. This inclusive take on approaching the field is important, but it can also shift the focus. In line with this, educational experts working with neurodivergent students were involved in the study.

4.3.2 Germany

In terms of interviews, the following points were of the most interest for the German context.

4.3.2.1 Dortmund & Frankfurt, winter 2021/2022:

Interview partners were recruited through personal and professional contacts, and all interview partners were neurodivergent (with either autism, AD(H)D, or dyslexia). This meant that the pre-service teacher groups could be offered interview partners that were a good fit for their research interest. However, it also introduced bias since the people interviewed reflected the personal networks of the lecturers.

For ethical reasons, in general, interview partners were paid from project funds (and could therefore be considered the "consultation" tier of Arnstein's Ladder; Arnstein, 1969). We did this in order to distance ourselves from the idea that neurodivergent expertise is available for free. At the same time, and also within ethical considerations, interview partners from within the closest personal networks of the lecturers were not paid, and the relationship of these individuals to the lecturers was not disclosed to the interviewing students.

A large part of the interview preparation process involved sensitizing students to the issues of ethical data collection, privacy, resource-oriented language, and respecting the boundaries of the interview partners. It was left up to the interviewees if they wanted to read the final transcripts or papers of the students. At least one interviewee did request this, and follow-up conversations about these insights were discussed with them.

4.3.2.2 Frankfurt, summer 2022:

Since, within the project, it became clear that it was very challenging to include all stages of the research project in only one seminar, a second and then a third iteration of the course was offered in the semesters directly following the first iteration. In the second semester, the course was reproduced but adapted following the experience of the course from the previous (i.e., winter 2021/2022) semester. Therefore, for the second provision of the course, the pre-service teachers were asked to check first if they knew people who would make great interview partners, and most groups recruited an interview partner from their network of acquaintances; these interview partners were not paid. When asked about this change, the pre-service teachers in these groups mentioned that knowing their interview partners made the interview easier and less stressful. However, as previously with the course instructors, it also introduced selection bias since the people interviewed reflected the personal networks of the pre-service teachers themselves.

For those groups that could not find an interview partner, the course instructor was able to assist and drew on their own network and on the network of other ELLeN partners to find fitting interview partners. These interviewees were paid. The same advantages, disadvantages, and attention to ethics applied here as they had for the Dortmund–Frankfurt course in the winter 2021/2022 semester. Also again, all interview partners were neurodivergent (autism, AD(H)D, dyslexia, or developmental language disorder [DLD]).

4.3.2.3 Frankfurt, winter 2022/2023:

As in the previous two iterations, the 14-week seminar titled "Neurodiversity in the EFL classroom" included three sessions dedicated to working with interview data. Yet, while the first two iterations focused on the research process up to and including data collection and provided little support of

data analysis, the third iteration used the existing interview transcripts to focus on data analysis. The third iteration took place at an advanced TEFL teacher education seminar at Goethe University Frankfurt during winter term 2022/2023.

4.3.2.4 Alternatives for recruiting interviewees:

Other approaches to recruiting interviewees would have been feasible, but they were not chosen for this project. One option would have been to draw on established groups, such as self-help groups or cultural groups, to find potential interviewees. Advertising for interviewees via social media or other means (e.g., on-campus flyers) would have also been possible (though risks related to online recruitment for paid research participation have been identified; see Pellicano et al., 2023; see also The ELLeN Group, 2024a).

4.4 Participation and representation in material development

For the course materials for both semesters when the courses were taught in Germany, we focused on providing different sources of information, including sources based on lived experience and sources by neurodiversity activists. This included videos, webcomics, poetry, research articles, young adult fiction, scholarly books, autobiographies, and so on: materials that could reach the pre-service teachers not only while taking the course but which could be useful for them in the future as practicing teachers. We also engaged in awareness raising about this and made sure that students knew whether the author of a text they were reading publicly identified as neurodivergent. We explicitly addressed issues of representation and voice by, for example, highlighting the importance of participatory methods and the neurodiversity movement's exhortation of "nothing about us without us."

In the winter 2021/2022 semester, we included one guest speaker and an autistic activist and advocate, who lectured to students and answered questions. A second guest speaker (an experienced educator with cognitive disability) had to cancel due to ill health. An autistic activist and advocate reviewed the course materials for us. We also piloted some of these materials in other contexts to ensure the outcomes were sensitive to the voices of the neurodivergent individuals.

5. Development of pre-service teachers' understandings of and attitudes towards inquiry-based learning and neurodivergent learners

This section presents evaluation data from the first iteration of the project. In it, we draw on quantitative and qualitative data to explain pre-service teachers' understandings of and attitudes towards the course, IBL, neurodiversity, and their roles as future EFL teachers.

Did this course design achieve its main goals?
How did university students experience these courses?

To get an overview of the development of the pre-service teachers' understandings and attitudes concerning inquiry-based learning (IBL) and neurodiversity over the course of the courses, both quantitative and qualitative data was collected and analyzed. For statistics and an overall understanding of what the pre-service teachers were coming into the class with and taking with them after the class, questionnaires were conducted both at the beginning and end of the semester. Then, to also gain a more nuanced understanding of how the pre-service teachers felt about the course and its topics, they submitted reflections, and some voluntarily participated in small focus group interviews at the end of the winter 2021/2022 semester. Students took part in these feedback sessions to varying degrees from across all three of the different universities: the University of Vienna, the Technical University of Dortmund, and Goethe University Frankfurt.

5.1 Quantitative descriptions of the pre-service teachers' understanding and attitudes in the various partner institutions

5.1.1 Pre-course questionnaires

The pre-course questionnaire was administered before the start of the seminar to gauge the pre-service teachers' familiarity, and attitudes towards neurodiversity and IBL. In total, 35 of the pre-service teachers at the three participating universities, answered the questionnaire: University of Vienna (7), Technical University of Dortmund (20) and Goethe University Frankfurt (8). The questionnaire was composed of 24 items, consisting of Likert scales, as well as yes/no questions. In this section, we present a summary of the findings.

5.1.1.1 Neurodiversity

According to the pre-course questionnaire from the three universities, at the start of the winter 2021/2022 semester, most of the pre-service teachers had a basic familiarity of the different neurotypes but were mostly unaware of the concept of neurodiversity.

Familiarity with neurodiversity and neurotypes.

	Wien		Frankfurt		Dortmund		Total			
	Yes	No	Yes	No	Yes	No	Yes (n)	Yes (%)	No (n)	No (%)
Autism	5	2	4	4	14	6	23	65.7	12	34.2
ADHD	7	0	8	0	20	0	35	100	0	0
Dyslexia	6	1	3	5	17	3	26	74.2	9	25.7
Dyscalculia	6	1	4	3	17	3	27	77.1	7	20

Reading and writing disability	6	1	8	0	18	2	32	91.4	3	8
Neurodiversity	1	6	3	5	7	13	11	31.4	24	68.5

Students were also asked how the difficulty of tending to the needs of neurodivergent students. Thirty-three of the pre-service teachers rated this as difficult (18 as very difficult, and 15 as somewhat difficult).

Perceived difficulty of dealing with neurodiversity in the ELT classroom.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Very difficult	5	4	9	18	51.5
Somewhat difficult	2	4	9	15	42.8
Not particularly difficult	0	0	0	0	0
Not difficult at all	0	0	0	0	0
No answer	0	0	2	2	5.7

5.1.1.2 Inquiry-based learning (IBL)

The majority of the pre-service teachers were not familiar with IBL. Experiences with these methods were almost non-existent and, when reported, were limited to small class exercises.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Yes	2	2	5	9	25.7
No	4	6	15	25	71.4
No answer	1	0	0	1	2.8

5.1.2 Post-course questionnaires

The pre-service teachers were also asked to respond to a questionnaire at the end of the semester in order to determine whether and to what extent their attitudes towards and knowledge of neurodiversity and IBL had changed over the course of the semester. Twenty-eight students answered the questionnaire in total, including 13 from the Technical University of Dortmund, 10 from the University of Vienna, and five from the Goethe University Frankfurt. The questionnaire was comprised of 24 questions, including Likert scales, multiple choice questions, and open-ended questions.

When asked whether the students had considered IBL useful for achieving the course objectives, all students answered positively, with over half of them (53.5%) rating the methods as “very useful.”

Effectiveness of using IBL.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Very useful	3	4	8	15	53.5
Somewhat useful	7	1	5	13	46.4
Not very useful	0	0	0	0	0
Not at all useful	0	0	0	0	0

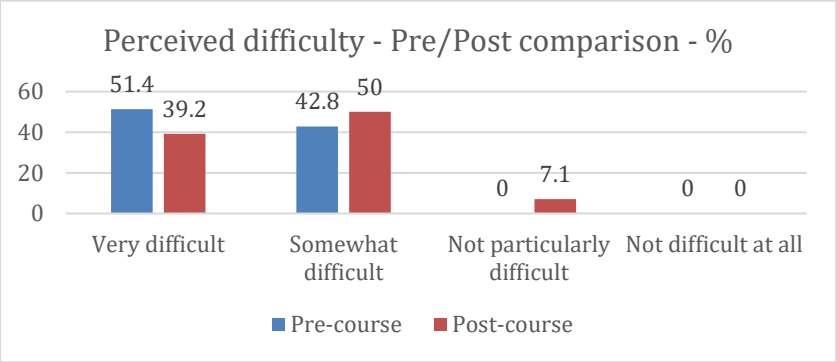
Similar to their answers regarding methods, students from all three universities unanimously rated the importance of learning about and working with neurodiversity and neurodivergent learners as being enriching.

Value of working with neurodiversity in the ELT classroom

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Very enriching	8	3	9	20	71.4
Somewhat enriching	2	2	4	8	28.6
Not particularly enriching	0	0	0	0	0
Not enriching at all	0	0	0	0	0

There was also a decrease in the extent to which the students considered working with neurodiversity and neurodivergent learners difficult.

Perceived difficulty – Pre/Post comparison – %



According to the data, the seminar had a positive impact on students' attitudes towards inclusive education. Eighteen students reported that their attitudes towards inclusive education had improved, while ten indicated that their attitudes remained unchanged. None of the students reported that their attitudes had worsened.

Changes in attitudes towards inclusive education.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Improved	5	3	10	18	64.3
Remained unchanged	5	2	3	10	35.7
Worsened	0	0	0	0	0

In the same vein, students' self-perception of their understanding of neurodivergent learners improved. No participant reported their understanding of neurodiversity to have worsened.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Improved	10	5	12	27	96.5
Remained unchanged	0	0	1	1	3.5
Worsened	0	0	0	0	0

Finally, the seminar also proved beneficial in helping the pre-service teachers to gain a heightened awareness of their own needs as future teachers. All of them answered positively when asked whether they were aware of the areas in which they might need support with regard to inclusive

teaching. By the end of the semester, they most commonly identified four areas where they might need support: classroom management, lesson planning, material design, and implementation of individualized learning.

Self-awareness of development needs.

	Vienna	Frankfurt	Dortmund	Total (n)	Total (%)
Yes	10	5	13	28	100
No	0	0	0	0	0

5.2 Qualitative parallels and differences among the pre-service teachers' understanding and attitudes in the various partner institutions

5.2.1 Course reflections

Although not all lecturers conducted the course and tasks in the same way and not all of the pre-service teachers gave their permission to allow their reflective (i.e., qualitative) data to be used in conjunction with the ELLeN project, there were still some very useful findings to come out of an analysis of a (partial sample of the) course reflections. For instance, as part of the final assignments of the course taught at the Technical University of Dortmund, the pre-service teachers were tasked with writing a reflection on the impact the course had on them, on its design and activities, and on their understanding of neurodiversity. In these reflections, a variety of themes emerged, including the connection between neurodiversity and social justice, the didactic implications of adopting a neurodiversity-minded approach in the EFL classroom, the role that teacher education can play in student-teachers' attitudes and projected practices, and the effects of using IBL in developing an understanding of the topic. In analyzing the results, two overarching themes stood out: (1) the pre-service teachers' perceived links between neurodiversity and social justice and (2) their beliefs about didactic practices as influenced by an understanding of neurodiversity.

One of the most prominent arguments made by the participants is that the seminar enabled them to establish a connection between social justice and English teachers' need to learn about neurodiversity and consequently transform their teaching practices. Some of the pre-service teachers underscored the importance for teachers to understand neurodiversity so that they can accommodate their teaching to their school students' learning needs. For example, one of the pre-service teachers articulated that teachers being attuned to the needs of neurodivergent learners enhances social justice and that teachers can play a role in fostering social justice by creating learning experiences that cater to diverse learners.

In terms of the course being directed at pre-service teachers training to be teachers of English as a foreign language (EFL), the pre-service teachers also saw how there could be (and are) specific consequences or difficulties for neurodivergent learners, especially if they are not given the same opportunities and/or cannot partake in learning such a widespread *lingua franca* as English to the same extent as non-neurodivergent learners. These pre-service teachers understood these difficulties as perpetuating inequities and potentially limiting the social mobility of neurodivergent learners.

At the same time, the pre-service teachers also saw the benefits of learning about neurodiversity outside the EFL classroom as well. In connecting neurodiversity and social justice at a more localized level, they noted that the seminar provided them with an opportunity to establish cross-curricular connections with other classes, highlighting the interconnectedness of different subject areas and the importance of integrating neurodiversity into a broader range of academic domains.

With the second theme that emerged, the pre-service teachers' reflections revealed that the seminar facilitated the development of skills they believe are necessary to create more inclusive classrooms. Additionally, the seminar prompted some of them to reflect on their teaching beliefs and past classroom decisions. They recognized that accommodating diverse learning needs requires a tailored approach that considers each student's unique needs and challenges. In the pre-service teachers' reflections, they reported that listening to the student would give the teacher clues about how to best accommodate the class to the students' needs. In addition, it would also lead the teacher to learn about the assistive technologies that are more relevant for the learner's needs and the tasks, activities, or assignments that might give the learner more possibilities to succeed. It is this two-way communication in the classroom that can help teachers give students more agency in their learning processes, diversify instruction and assessment methods, individualize learning, and update teaching practices. Lastly, the courses' pre-service teachers saw the benefits of learning from previous experiences, reflecting on how being aware of neurodivergent learners and their experiences is highly beneficial to being better prepared in the future.

5.2.2 Focus group interview findings (first project iteration)

While the pre- and post-questionnaires filled out by the pre-service teachers were able to tell us about their levels of awareness and understanding of neurodiversity and inquiry-based learning as well as whether and how their attitudes towards IBL, neurodiversity, and teaching neurodivergent learners had been affected over the course of the semester, volunteer-based focus group interviews were conducted at the end of the course to gain more insight into the pre-service teachers' thoughts on the different topics and tasks of the course. Based on the availability of the pre-service teachers, there were three focus group interviews in total (with an average of three pre-service teachers per interview) that were conducted either just before the end of the winter semester 2021/2022 course or just after the course was finished for the semester. Two small focus group interviews were conducted with pre-service teachers from the University of Vienna course: one on January 31, 2022, and a second on February 7, 2022. The last small focus group interview took place on February 16, 2022, with Goethe University Frankfurt pre-service teachers.

In addition to teaching pre-service teachers about neurodiversity and teaching methods for neurodivergent learners in the EFL classroom, the courses discussed here had an IBL design that was intended to encourage reflexivity and incorporate the voices of neurodivergent individuals (especially as learners). In connection with this, one of the goals of this output has been to highlight the implementation of IBL in teacher training across the national contexts, thereby adding to literature on IBL in teacher training that is usually nation-specific. Therefore, this section will show not just the pre-service teachers' thoughts about the course and IBL in general, but it will also focus on where there were parallels or differences between the different contexts in which the course took place.

Although we are discussing the parallels and differences between the different national contexts, we must also keep in mind that the courses in Germany and Austria were not designed exactly the same. The pre-service teachers at the German universities conducted interviews near the end of the semester with neurodivergent individuals of the community, many of whom were adults who talked about their memories from their schooldays. The pre-service teachers at the Austrian university conducted interviews with school participants; either professionals working in inclusive schools and having experience with neurodivergent learners or learners who were attending school at the time. In addition, many pre-service teachers had to contend with unforeseen challenges due to restrictions from the COVID-19 pandemic, and these challenges therefore also played a role in the discussions during the focus group interviews and how they perceived the course. These differences and challenges are especially relevant when considering the pre-service teachers' experiences with the courses' interview processes.

5.2.2.1 Pre-service teachers' discuss the course and IBL

The pre-service teachers from both national contexts, Germany and Austria, discussed the course as being both interesting and challenging. In general, they felt that the content of the course and its IBL design contributed to their knowledge of neurodiversity and diverse classrooms and teaching methods. However, they also recognized that the course was challenging in several ways, especially with the IBL structure and interviews.

For many of the pre-service teachers, this was the first time that they were being tasked with learning how to plan and conduct interviews. Therefore, while the content of the course was aimed at teaching pre-service teachers about neurodiversity, different neurotypes, and teaching methods for the EFL classroom, much of the time in and outside of the class was given over to learning about interviews, creating questions, trying to organize the interview itself, and learning how to transcribe the interviews. In general, the pre-service teachers found these tasks arduous. In terms of organizing the interviews, the pre-service teachers encountered different challenges between the German and Austrian contexts. Possibilities were somewhat more open for those in Germany, who had to organize the date, time, and method directly with the neurodivergent individual whom they were interviewing. In Austria, the pre-service teachers interviewed school teachers or students and were thus restricted in part by school formalities and schedules.

In addition to the novelty and openness of the interview tasks themselves, the pre-service teachers were needing to prepare and conduct the interviews during the semester and winter holidays when there were many restrictions on physical and social contact in place due to the COVID-19 pandemic. These restrictions meant that many interviews had to be planned over the phone or by email rather than in person, and many of the interviews had to be conducted over the computer rather than in person. In some cases in Austria, this online set-up meant that the interviewers and interviewees were dependent on the resources of the school: For instance, some participants had to take turns using the computer because of the limited supply. Even if this presented a challenge to the pre-service teachers, they also acknowledged that the possibility to be interviewed over media rather than in person was actually preferable for some of the neurodivergent individuals who were interviewed. Additionally, in Vienna, the pre-service teachers discussed the place of interview from their perspective as pre-service teachers who were learning about neurodiversity and inclusive teaching practices: While some interviews were held online, others took place on-site, and those

pre-service teachers who could conduct their interviews at the school itself said they benefitted from being in a school, seeing what an inclusive school could look like, and talking to staff.

Alongside the challenges they faced with planning and technology, the pre-service teachers found the prospect of the interview itself nerve-wracking and that creating and relying on interview was stressful (due in part to the possibility of "choking under pressure"; see Baumeister, 1984). They often felt unsure of the questions they had prepared for their interviewee and nervous because they did not know what to expect, especially in regards to not knowing their interviewee beforehand nor knowing how successful the interview and experience would actually be in comparison to how they had prepared for it. The pre-service teachers would have preferred to know more about the background and context of their interviewees beforehand so that they could have tailored their interview questions to the individual and felt better prepared. They also suggested that performing pilot interviews could have helped them test their ideas out before putting them into practice. Once they were in the process of interviewing their participants, however, the pre-service teachers were able to relax into the process better and understand the purpose of their interviews better. This left them feeling that gaining experience is very beneficial to becoming knowledgeable, more flexible, and feeling more at ease with a task.

5.2.2.2 Pre-service teachers' discuss the neurodiversity, neurodivergent learners, and (EFL) teaching methods

In talking with neurodivergent individuals and teachers who have had experience with neurodiverse classes and learners, the pre-service teachers from every context came to realize that a teacher's teaching methods and style can have a big, even critical, impact on neurodivergent learners. Digital tools and media are beneficial for some neurodivergent learners, and, through the IBL design of the course, some of the pre-service teachers gained an understanding of why using digital technologies is preferable to in-person interactions for some learners of specific neurotypes. In another direction, the pre-service teachers also learned about social forms and settings that can be beneficial to some but challenging or detrimental to other neurodivergent learners. As social forms that involve groupwork and social interaction are incredibly prevalent in foreign language teaching, learning about social forms and alternative teaching methods is useful for future EFL teachers. Therefore, the pre-service teachers realized that it is important for teachers to learn what forms, settings, methods, and tools provide the best learning environments for their students and that they should try to design their teaching plans accordingly. This left the pre-service teachers feeling daunted, but for those in Austria who interviewed teachers, they learned that tailoring teaching to diverse students' needs becomes easier with experience.

For the pre-service teachers in the German contexts, they appreciated the knowledge about neurodiversity that they gained from the course but also from the broad range of neurodivergent individuals who they heard about, met, and listened to during the course. The neurodivergent adults who were interviewed by the German pre-service teachers were able to reflect upon what had and had not worked for them when they were in school and give suggestions as to why something worked or not. At the same time, many were also able to explain when and how the fact of being diagnosed with as belonging to a specific minority neurotype affected the schooling and/or life in general. There reflections in turn helped the pre-service teachers realize both the importance of

receiving a diagnosis and the understanding that not every neurodivergent student will have a diagnosis.

Furthermore, during the focus group interview, the pre-service teachers expressed their attitudes and values regarding neurodiversity in the school context. First of all, they agreed that it is important for (future) teachers to know about neurodiversity and accompanying issues in order to understand and react appropriately to their (future) students. In addition, it was discussed that it is important to take the perspective of the neurodivergent learners themselves into account, if you want to understand their needs in foreign language teaching better. Since teachers are not automatically experts in the field of neurodiversity just because they teach neurodivergent pupils, it was perceived as useful to talk to neurodivergent people as well as other teachers during the interviews. This can also be noted as an interesting observation as an IBL-related question regarding who should be interviewed with what epistemological interest.

In the end, the IBL design of the course helped the pre-service teachers understand the main topics and aims of the course better. At the same time, the pre-service teachers felt overwhelmed by what they learned through the course, especially because it helped many of the pre-service teachers to realize that they still needed to continue gaining more knowledge, practice, and experience in order to teach inclusively. Yet, in spite of the overwhelming aspects of the course, it also helped them realize that it is possible, and adapting, staying flexible, and offering various options for learning can help all learners to reach their potential and therefore be a means to teaching inclusively.

5.2.2.3 Pre-service teachers and their “lessons learned”

First of all, the pre-service teachers seemed to have developed the attitude over the course of the course that neurodiversity is a very complex topic and even people who have studied special/additional needs education did not feel well prepared with regard to neurodivergent pupils and their needs. Thus, for them, it is not realistic that secondary school teachers will be well prepared after just one seminar on the topic in order to deal with it appropriately. Nonetheless, they also expressed their conviction that it is very important to know a lot about neurodiversity as a (future) teacher. According to them, it is a topic that one cannot know enough about, and therefore, one should constantly update and extend one’s own knowledge about it. All in all, they were glad to have participated in the interview because they perceived that they gained valuable knowledge that they did not have before.

However, it was also mentioned that studying neurodiversity and gaining theoretical knowledge will never be enough to prepare a teacher for all situations they may have to deal with in regard to neurodiversity, especially in the classroom. Experience is crucial and teachers will always learn something new regarding neurodiversity throughout their careers. This notion can be connected to the belief that teachers who do not yet have a lot of experience would be well advised to ask for additional support. According to the pre-service teachers who participated in the focus group interviews, this holds especially true for “regular teachers” who do not have additional qualifications regarding inclusion and who are likely to be challenged and face difficulties when they work with neurodivergent learners.

With regard to learning about neurodiversity, it is interesting to note that the students still emphasize that even if there are "specialists" working at a school who are primarily responsible for neurodivergent learners, it is still every teacher's responsibility to keep up to date with new insights in the field of inclusion and neurodiversity and to care for every individual's wellbeing. A good team spirit (e.g., defined by trust and good communication) among teachers can help to actively create a learning environment which is beneficial for all learners. Feeling a positive connection towards the school you work for can increase the teacher's sense of responsibility for school development.

On a similar note, the pre-service teachers expressed their belief that meeting the needs of neurodivergent learners is easier when schools provide appropriate structure for it (e.g., in terms of additional teacher training as well as the physical structure of the school building, but also regarding the organizational system). One school that was described as a successful example by the pre-service teachers as a school that provides the structures to teach inclusively is a Montessori school that they learned about during the course. It was also remarked that it can be very difficult for individual teachers to put inclusion in practice if the school (system) does not provide the required structures for inclusive ways of teaching.

During the focus group interview, the pre-service teachers referred to the means of teaching inclusively. One way of putting inclusion into practice can mean, for example, that several options for learning are provided for the school students that they can choose from and to let them organize their own school week autonomously wherever applicable. Furthermore, letting the students choose what they want to work on and use individualized learning settings (German: *Freiarbeit*) is a possibility for putting inclusion into practice, however, it can cause time-related stress for the students. Regarding these options to implement inclusion, it is important to note that they are only possible if the school's structures allow such an extent of freedom.

In order to successfully implement inclusive ways of teaching, it is regarded by the students in the focus groups as relevant to be transparent about it towards all students. For example, it may be useful to explain to a class why some of the students are allowed to stand up during a lesson or why they get different materials or means of support during learning.

According to the pre-service teachers who were interviewed, another prerequisite for successful inclusive teaching is that teachers know a lot about neurodiversity. Hence, participation in the seminar was described as a positive experience, especially because neurodiversity was not usually made a topic in other seminars that has been part of their teacher education, even though it should be according to the pre-service teachers' opinion. They describe various learning effects that they had with regard to the topic of neurodiversity. Someone who had described themselves at the beginning as not having had much previous knowledge regarding neurodiversity, described that they now understand, especially through the interview they conducted, that it is important to treat neurodivergent learners as individuals and to take their individual preferences into account. To know that someone is autistic does not mean that you know what they like or need in order to learn successfully. Forcing neurodivergent learners to work in settings that do not work for them just because it would be socially desirable is considered to be a problematic approach. This understanding was agreed upon by several of the pre-service teachers who participated in the focus group interviews.

More than one person expressed that they gained more awareness for the topic of neurodiversity and its implications through participating in the seminar on a general level as well as for the teaching context. However, the students stated that their experiences during the seminar also made them realize that there is much that they do not know (yet) about neurodiversity. One of the pre-service teachers explained that this motivates them to learn more about neurodiversity and that they became more curious about it.

The pre-service teachers indicated different opinions regarding the question of whether they perceived the input they had received during the seminar about neurodiversity as a prerequisite for conducting the interview or not. Some said it was not necessary because they did not know whether their interview partner would be neurodivergent or not. However, some perceived it as a useful preparation, especially in the case that their interview partner was neurodivergent. Some of the pre-service teachers also mentioned that not knowing whether their interview partner is neurodivergent or not can be an asset since they felt like they approached the interview less biased and with less prejudices.

A common denominator seemed to be the idea that special schools which are adapted to the needs of neurodivergent learners are actually a benefit for all learners. The pre-service teachers emphasized that this implied that specialized schools should not be seen as a place for neurodivergent students only but as alternatives that are beneficial for everyone (e.g., having more teachers in a classroom can be an advantage for all students). Or, to put it differently: neurodivergent learners benefit from having more choices and options, and they may also benefit from a special type of school which is not a school for neurodivergent students only but which offers more support for all students. This opinion reflects an understanding of neurodiversity that encompasses the following attitude: all learners, no matter whether they are neurodivergent or neurotypical, profit from the possibility to work on something they are interested in and when they have more teachers they can address. The same attitude was expressed regarding the idea that feeling seen, appreciated, accepted, heard, and taken seriously by the teachers is valuable for all learners.

During the focus group interview, the pre-service teachers expressed an interesting shift in perspective regarding neurodiversity in school contexts. They stated that participation in the seminar and the research project helped them to adopt a positive perspective on neurodiversity in school. They said that, oftentimes, they had experienced that neurodiversity and school are talked about from a perspective which focuses on the challenges and problems that can arise from neurodivergence in a teaching and learning context. The seminar helped the pre-service teachers to perceive neurodiversity in school contexts as less negative, and they developed the feeling that their prejudices regarding neurodiversity were reduced.

During the focus group interviews, the pre-service teachers also expressed their attitudes and opinions regarding aspects that can be related to IBL and the effect of IBL. On a very general note, they noticed that having an atmosphere during the interview that is preferable to the interviewee can help to gain more valuable insights from the interviewee. Furthermore, they perceived the seminar as having provided useful preparation for the interview. However, some of the pre-service teachers stated that more context knowledge about their interviewee could have contributed to a reduction of their nervousness. Talking to neurodivergent individuals and hearing about their

personal experiences in the interview or during the guest lectures was perceived as very insightful and helpful to understanding the topic of neurodiversity better, and it also helped them to remember facts regarding the topic better when described in the guest lectures by neurodivergent people. In general, the pre-service teachers stated that their knowledge was broadened through their interviews.

Further opinions and attitudes that the pre-service teachers expressed that are interesting in the context of IBL concern the transcription processes. The pre-service teachers described different attitudes about the transcription process and outcome. Some perceived the transcription as additional work from which they did not gain any new insights. Others, however, stated that listening to what was said multiple times during the transcription process helped them to understand better the exact phrases and words that were used. However, for some interview groups there were still gaps, and the person did not feel that they gained new insights regarding neurodiversity or inclusion during the transcription process. Another pre-service teacher stated that the transcription helped them to consolidate the transcriber's knowledge but that no new insights were generated during the transcription process. Generally, the pre-service teachers seemed to agree that the effect of transcribing can be described as negligible. However, reading the transcripts that other interview teams produced did help them to get new insights.

5.2.3 Group discussion (third project iteration)

Additional qualitative data was collected in the form of a group discussion (facilitators: Geert van Hove and Michelle Proyer) at Goethe University Frankfurt in spring 2023. This discussion took place during the last seminar session of term with a subgroup of students who volunteered to participate. As this was within the third iteration of the project, students had analyzed existing interviews, rather than conducting interviews themselves.

Many inclusive education projects are accused of being too much about ideology and too little about evidence-based approaches. In an attempt to follow up on the impact of interventions within the ELLeN Project (and thus working in an evidence-based way), we had the opportunity to conduct a group interview with some of the pre-service teachers at Goethe University Frankfurt after they attended the course modules on "neurodiversity and inclusion" at their university. Two ELLeN team members (Proyer and van Hove) who were not involved in the modules had the opportunity to freely reflect with the pre-service teachers in the class on the value of these modules within their training as teachers and the added value in terms of their later careers. To follow up on the impact of taking one module within a curriculum, the group interview lasted more than an hour and was analyzed based on the method of "situational analysis" (Clarke, 2021). This group discussion, which touched on topics related to challenges related to preparing for inclusive settings, is currently being analyzed and will be beyond the scope of this report.

6. Conclusions and considerations

This section summarizes key lessons that can be learned from the project. In addition, the conclusion acts to link these lessons with further thoughts to consider in the wide scope of inclusive education and diversity.

What did the ELLeN team learn from this project?

The researchers and teachers involved with the ELLeN project have taken away some key lessons during the course of it. These "lessons learned" cover a wide span. There were specific design elements of the course that became useful revelations, such as that not all students have experience with IBL-designed courses, and they might therefore need extra time to become familiar with constructing and conducting their own research. However, even though IBL designs might prove daunting to those who are not used to it, the usefulness of such a design (i.e., the experience and awareness it brings to the students involved) is still appreciated, at least by the end of the course. There were also take-aways regarding theoretical elements that are considered relevant and important. For instance, the ELLeN project helped reinforce the premise for everyone involved that *we are all individuals*, and there are no one-size-fits-all "best practices," but how we experience teaching and what we want from teaching is based on the individual as well. Other experiences and results can be found at the ELLeN project's website (ellen-project.eu) and other publications (see, e.g., The ELLeN Group, 2024b).

In addition to the experiences, perceptions, and lessons learned by the researchers, teachers, and pre-service teachers who have participated in the course, this project has tackled an interesting phenomenon within inclusive teacher education and leaves us with questions to consider: Does it make sense to prepare pre-service teachers for teaching students with specific disabilities? Does this change when we consider what they are specializing in: that they are pre-service teachers of English? And with these considerations, are we still talking about inclusion if we do so?

These questions can be related to the "Dilemma of Difference" by Brahm Norwich:

> The assumed basic dilemma was whether to recognize, or not to recognize, differences, as either option has some negative implications or risks associated with stigma, devaluation, rejection or denial of opportunities. The dilemmas of difference relevant to students with disabilities were about identification (whether to identify and how, or not), curriculum (how much of a common curriculum was relevant to them) and placement (to what extent they learn in ordinary classes, or not). (2008, p. 287)

Furthermore, we considered which approaches there are to teaching inclusion, how sustainable they can be, and which challenges students associate with being prepared for diverse classrooms in general and working with neurodivergent students in particular.

The following points summarize some of the main challenges:

- There are tensions regarding categorization: should categorizations be viewed and applied as political and cognitive tools, or should we work to move beyond labels?
- There are tensions regarding age: these include the protection needs of young people vs. adults; the "protective role" of schools; generational differences (school has changed), differences in "in situ," and retrospective perspectives; and, drawing on suggestions from

Prof. Dr. Geert van Hove's students, university students might be most comfortable interviewing people of similar ages.

- There are tensions regarding context(s): should there be interviews with one individual or multiple stakeholders in one institutional context?
- There are inter-disciplinary tensions: especially considering those between and within TEFL/inclusive education.
- There are institutional tensions: these include such things as curricular alignment, etc.

Judging from the data and other research in the field, we can state that a change in mindset of pre-service teachers in terms of teaching neurodiversity-informed needs goes hand in hand with a much broader and general shift towards understanding inclusion and acting accordingly. On multiple occasions, the pre-service teachers realized that an important aspect of their future work is to adapt teaching materials and methods to neurodivergent learners, in particular, as well as to the diversity of the potential student population, in general.

Also, by situating the problem within the context of contemporary globalized society and highlighting the central role English has in it, awareness was brought to the role language, especially *lingua francas*, has in the learning experiences of neurodivergent learners. Thanks to this, one student called for a reconceptualization of how English learning is viewed in special needs and inclusive education. In line with the conclusions of the pre-service teachers, the students urged that future teachers of English reflect on how they can redesign EFL methodologies so that they foster greater inclusion of diverse learners.

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