Facilitating Effective Neurodiverse Group Work in Teacher Education

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ABSTRACT

Group work can be challenging for all students, particularly neurodivergent learners. Teacher educators can facilitate equitable, inclusive experiences by communicating group work expectations clearly, actively guiding group processes, reflecting on neurodivergence and disability, and engaging in inclusive group work practices. By experiencing these practices firsthand, preservice teachers learn to foster classrooms where all students are seen, supported, and empowered to participate meaningfully, ensuring inclusion, access, and belonging in diverse learning communities. This article provides strategies for supporting teacher educators in preparing neurodiverse preservice teacher cohorts, including neurodivergent and non-neurodivergent students, to collaborate effectively in college-level group work.

KEYWORDS

Group work, inclusive pedagogy, neurodiversity, teacher education

Group work is a frequently used learning experience in higher education classrooms that often involves students working in a small group of two to five people to complete an assignment (Lavy, 2017). Some group work is cooperative, which emphasizes structured interdependence through defined roles, shared goals, and individual accountability within the group. Collaborative group work emphasizes student autonomy, shared meaning-making, and less instructor guidance. Although these approaches have distinct features, they both can take varying forms depending on the level of structured interdependence built into the activity (Yang, 2023). Understanding this distinction matters, since the amount of structure and instructor guidance built into group work can significantly shape how well students can participate equitably and successfully. For many students, group work presents a wide range of challenges (LaBeouf et al., 2016). These difficulties can be even more pronounced for neurodivergent students when compared to their non-neurodivergent peers (Rhoades & Santhanam, 2021). The purpose of this article is to outline the challenges faced by neurodivergent students during group work and share recommendations to enhance the design and implementation of group work assignments in postsecondary coursework for preservice teachers. The article aims to (1) support teacher educators in preparing neurodiverse groups of preservice teachers—including both neurodivergent and non-neurodivergent individuals—to collaborate effectively and (2) provide clear, practical models of inclusive and accessible group work that teacher candidates can apply in their own future classrooms.

GROUP WORK IN EDUCATION

By nature, the education field is collaborative. On any given day, a special education teacher will need to be able to plan, negotiate, and work with a diverse group of people in roles such as paraprofessionals, general education teachers, administrators, speech language pathologists, and parents/guardians (Billingsley et al., 2020; Pellegrino et al., 2015). Being able to collaborate is one of the most important factors to enhance teacher quality and student academic outcomes (Aceves & Kennedy, 2024).

Given the need for collaboration, teacher education programs need to provide

space for students (preservice teachers) to develop the necessary skills to navigate these collaborative relationships more effectively (Da Fonte & Barton-Arwood, 2017). Specifically, many teacher educators attempt to support preservice teachers' collaboration skill development by having them participate in group work (Rios et al., 2023). Likewise, group work can help enhance preservice teachers' ability to contribute towards a common goal with colleagues and increase their "leadership, decision-making, trust-building, communication, and conflict management skills" (Johnson et al., 2014, p. 94). However, teacher preparation often does not provide sufficient instruction on *how* to collaborate effectively (Hamilton & Petty, 2023). This may contribute to many postsecondary students reporting a dislike for group work activities for reasons such as unbalanced contributions to the assignment, unclear rationale for why that activity is relevant, ambiguous roles, and interpersonal conflicts and communication difficulties between group members (LaBeouf et al., 2016). As such, teacher educators must provide structured opportunities for preservice candidates to learn how to communicate and collaborate with each other effectively to improve their instruction (Urbani et al., 2017).

NEURODIVERGENT EXPERIENCES

Neurodivergent, a term coined by Kassiane Asasumasu (2015), refers to individuals whose way of being differs from the dominant societal expectations and norms, which includes people with disabilities and/or mental health conditions such as autism, learning disabilities (LD), obsessive compulsive disorder, attention deficit/hyperactivity disorder (ADHD), anxiety, and acquired brain injuries. The prevalence of students with disabilities, including neurodivergent students, enrolling in higher education is increasing (Government Accountability Office, 2024).

This article will focus on the group work experiences of a subset of neurodivergent people, specifically autistic students and students with ADHD or LD (Drexler, 2024; Rhoades & Santhanam, 2021), from which the CARE framework was developed to guide inclusive, supportive practices in collaborative learning. CARE stands for (a) **C**lear communication, (b) **A**ctive role in the design and monitoring of the group work experience, (c) **R**eflection upon understanding of neurodivergent students, and (d) **E**ngagement in and modeling practices that promote neurodivergent student success.

Neurodivergent college students are more likely to report discomfort with in-class communication, including experiencing challenges with doing group work (Santhanam & Wilson, 2024). For instance, college students with ADHD or LD identify barriers such as lack of clear directions, increased likelihood of negative emotions, and lack of belonging as challenges with group work participation (Pfeifer et al., 2023). Additional barriers to successful group work experiences shared by neurodivergent college students include miscommunication with group members, disorganization with executing the group work activities (e.g., setting and keeping schedules, managing time and tasks), feeling the need to "please" other group members, and not clearly articulated division of work leading to uneven contributions from group members (Drexler, 2024; Salvatore et al., 2024). These issues often become an extra burden for neurodivergent students as they either tend to take on more work or a leadership role to ensure the assignment is completed, or they find themselves being excluded, unable to contribute, or, if they were able to contribute, having their ideas or effort discounted (Drexler, 2024; Salvatore et al., 2024). Additionally, research suggests that group work participation requires quicker processing time of information compared to completing tasks alone (Hsieh et al., 2020), which may pose an additional challenge for many neurodivergent students.

Despite the challenges that may arise from group work participation, many neurodivergent students recognize the need for and value of it. Specifically, they see value in having opportunities to connect with classmates, engage with course content in another way, and may be helpful for their future career (Drexler, 2024; Salvatore et al., 2024). In recent studies, neurodivergent college students shared recommendations to enhance the effectiveness of group work experiences. In the next section, we share these suggestions and explore how teacher educators can implement these recommendations toward the goal of creating more accessible and effective collaborative learning experiences.

RECOMMENDATIONS FOR GROUP WORK

To prepare *all* teacher candidates for working in neurodiverse school environments comprised of neurodivergent and non-neurodivergent students, a reconceptualization of group work is essential (Drexler, 2024) as educators are responsible for removing barriers and designing accessible learning opportunities for all students. Neurodivergent students experience barriers in collaborative learning, such as miscommunication, unclear directions, uneven division of work, ostracization, heightened anxiety, and the need to take on extra cognitive or leadership burden (Drexler, 2024; Rhoades & Santhanam, 2021; Salvatore et al., 2024). The CARE framework was developed by the authors to guide teacher educators in structuring their inclusive group work activities. The framework

TABLE 1: Examples of Providing Clear Communication Around Group Format Rationale

GROUP WORK ACTIVITY	RELEVANCE TO TEACHING	SAMPLE RATIONALE STATEMENT
Mock Individualized Education Plan (IEP) Team Meeting	Actively participating in and attending IEP meetings is an expected job activity for general and special education teachers. Special education teachers can also expect that they will be leading these meetings. Since it is almost guaranteed that teachers will be part of IEP teams, experiencing the process in a structured and low-risk way may help them prepare for when they do it in their actual jobs.	We will be working in groups to develop an IEP for a case student and prepare for a subsequent IEP meeting. This will be done as a group, since the creation of IEPs involve the input of multiple people such as the special education teacher, general education teacher, related service providers, and family members, and you will need to be able to contribute to this process in your future career
Co-Teaching Lesson Plan – Work with a partner to design a lesson, make accommodations/ modifications based on the needs of assigned fictional students, and delegate roles for each teacher.	General and special education teachers often co-teach in inclusive settings. To optimize student outcomes, it is imperative that co-teaching partnerships can communicate, collaborate, and problem-solve together.	Special education teachers often co-teach with general education teachers in inclusive classrooms. We need to communicate and problem-solve with our co-teacher to ensure our students are getting what they need to be successful. The co-teaching lesson plan assignment will be done with a partner so that you can experience planning and negotiating responsibilities with a colleague. Who you will work with will be randomly assigned, to simulate what co-teaching may be like on the job.
Response to Intervention (RTI) – Identify an area of concern, design a screening method, develop a research-based intervention for Tier 3 instruction, and design a progress monitoring plan in groups of 3.	It is important to be proactive as teachers. Screening and monitoring student progress and providing instruction and support tailored to their specific needs can help ensure students can make as much progress as possible. This process often involves multiple professionals to make it effective.	As educators, it is important to be proactive about ensuring students are getting the support they need to be successful. We need to collect and analyze data to help inform instructional decisions. You may have teacher assistants or other educators helping with the evaluation, monitoring, or instructional process. You need to communicate well and coordinate this process efficiently. Doing this in groups will allow us to practice navigating the RTI process like you would in your future classrooms.

was derived from a synthesis of empirical literature on neurodivergent students' experiences in higher education, combined with established best practices such as Universal Design for Learning. It was refined through observation and reflection on preservice teacher group work dynamics. By grounding the framework in both research and practical experience, teacher educators are provided with actionable strategies for fostering equitable and accessible group work environments.

Clear Communication

Neurodivergent students consistently recommend that their professors provide clear expectations and learning objectives for their group work assignments (Drexler, 2024; Pfeifer et al., 2023; Salvatore et al., 2024). Specifically, students need to know what they are doing, why they are doing it, and how it should be done (Salvatore et al., 2024). First, it should be clear *why* it is necessary for the assignment to be done in a group setting. Many neurodivergent students prefer completing work individually; however, they understand that there are times when working in a group may be necessary (Drexler, 2024). Teacher educators need to state clearly why the assignment is being done in a group and how this would relate to their future job experiences. See Table 1 for examples of learning rationales for common teacher preparation group activities.

Likewise, if there is no clear rationale for requiring group work, teacher educators can provide alternative activities or allow for independent assignment completion. For example, reading a practitioner article and responding to questions may not inherently involve collaboration, yet this type of activity is a common example of group work in teacher preparation courses. Unless a clear rationale for group work can be articulated to students (i.e., how working with others will directly benefit their development as future teachers), teacher educators should offer the option to complete the task independently.

In addition to understanding the rationale for tasks, students need to know *what* exactly they need to do to be successful with the assignment

TABLE 2: Examples of Group Roles

ROLE	DESCRIPTION
Coordinator	Keeps the group on track to complete the project. Schedules meetings, sends out reminders, and develops and sends out agenda to group members. Leads discussion in setting initial group expectations and goals and determining next steps for subsequent meetings. Leads efforts to resolve disagreements in the group. Checks for group consensus on project.
Recorder	Keeps a written record of group member's ideas and overall progress on the project. Shares what occurred in group meetings at the end of meetings and share notes with group members through email or in a group-accessible folder. Compile and edit the project pieces to ensure consistency. Primary manager of group's project documents.
Reporter	Will take the lead in presenting project activities or sharing in whole group discussions (if applicable). Responsible for initial design of presentation slides and materials.
Researcher(s)	Investigates and shares facts, examples, and other information relevant to a given topic or issue the group is working on.
Contributor(s)	Share and evaluate ideas for content or approaches to complete the project, solve procedural issues, and resolve conflicts. Supports with writing tasks.
Facilitator	Asks for clarification of ideas and opinions of group members. Poses questions to encourage further discourse on topics. Summarizes these ideas and describe what may work based on this information. Encourages less talkative group members to participate, while trying to limit length of speaking of more verbose group members.

RESOURCES: These group roles were informed by these resources. Check these out for more group role ideas.

- Beebe, S. A., & Masterson, J. T. (2014). *Communicating in small groups: Principles and practices.* Pearson.
- Drew, C. (2023, August 23). *21 group roles for students* (list of examples). Retrieved from: https://helpfulprofessor.com/group-roles-for-students/
- Effective U (2026). *Group Roles.* Retrieved from: https://effectiveu.umn.edu/projects/group-project/group-roles

Note. Neurodivergent students recommend instructors keep groups small (two to six people) for group work assignments (Drexler, 2024). As such, only six roles are provided on this list. If there are less people than roles needed to make the project successful or you find that more than one student may need to take on a role, it is okay to group roles together. Rolls can be rotated among group members to promote skill-building. Provide alternative roles for non-speaking contributions during presentations such as technology support, if applicable. However, please reflect upon the nature of the roles and if they would align well with one another.

and *how* the professor is expecting the assignment to be done. Neurodivergent students require clear, detailed instructions on *what* tasks to complete within the group context, *what* group roles they are assigned to, and *what* expectations they need to meet to be successful. This information, when provided prior to initiating group work, will help minimize confusion and prevent misinterpretations, thereby enhancing student confidence and engagement in group work (Drexler, 2024; Pfeifer et al., 2023). Additionally, to address *how* the student engages in group work, educators must acknowledge that students may process auditory, written, and visual information at varying processing speeds; may need clarifying questions answered in a timely manner; and may need additional time to prepare for group work. Likewise, neurodivergent students recommend that professors set an expectation of an open line of communication and share necessary information related to the group work in advance of starting the assignment (Drexler, 2024; Salvatore et al., 2024). When students share concerns or advocate for their needs, it is crucial that the teacher educators meet them with sensitivity and be receptive to what they are sharing. These practices will help establish trust and may encourage students to reach out for support during the group work experience.

Active Role

Often, higher education faculty utilize group work to support deeper student learning and enhance student communication, critical thinking, and teamwork skills (Hogan & Young, 2021). Despite the intent, there are frequently underlying issues with the group work experience that professors may miss if they are not actively involved. Neurodivergent students recommend that faculty have an active role not only in ensuring a successfully developed group work assignment but also during the assignment implementation process. For instance, professors can incentivize inclusivity practices among group members by creating certificates for meeting a specific objective (Pfeifer et al., 2023).

Teamwork skills consist of being able to (a) communicate, (b) actively listen, and (c) collaborate while also being honest, responsible, empathetic, and aware of one's actions and perspectives (Kratumnok & Phrakhrusutheejariyawattana, 2024). Working in groups is not sufficient for students to become proficient in working with others effectively (Goldsmith et al., 2024). Students who make up neurodiverse groups will vary in their work habits and needs, which, without effective teamwork skills, can amount to disharmony and conflict. To address this,

teacher educators should set aside time early in the semester to teach *all* their students teamwork strategies and provide opportunities for them to practice them (Salvatore et al., 2024).

To further promote student teamwork skill development, teacher educators need to consider the dynamics between and the nature of the group members before and during the group work experience (Salvatore et al., 2024). They must be prepared for the potential misalignment in how group members will approach tasks and identify ways to support them in navigating any conflicts that could arise. Therefore, teacher educators should regularly check in with groups to ensure that not only everyone is being included but also to gauge how things are going (Drexler, 2024; Salvatore et al., 2024). When checking in, professors are encouraged to be receptive to what the students are sharing and demonstrate sensitivity about what students say they need or what issues they are experiencing in the group (Drexler, 2024). As an example of an ineffective way to address a student issue, after expressing a concern to their professor, a student shared "My [instructor said], 'If you communicate what you want…they're going to listen.' That's not what happened. I don't have the time, energy, or effort" (Salvatore et al., 2024, p. 23). When students cannot find good solutions for their concerns, they may end up doing all the work themselves or disengaging from the activity (Salvatore et al., 2024). Additionally, faculty should avoid assuming student attempts at assertiveness will resolve issues within group work and instead facilitate needed conversations among group members. For example, professors can proactively help group members negotiate procedural elements of the group work, such as how often they would meet, whether they would meet in person or online, and when they may take breaks during the process. Creating roles for group members to take on while doing the group work may help reduce misunderstandings with work distribution and the likelihood of someone not doing their part (Drexler, 2024). See Table 2 for examples and resources for group roles.

Reflect Upon Understanding

Traditionally, teacher preparation programs have framed disability as something to be fixed or remediated, which may promote the medical model of disability (i.e., deficit-focused belief that it is the individual who must be "fixed" without considering how the environment or systems contribute). Despite best efforts to move teacher education toward a more inclusive and positive view of disability, not only do deficit framings persist in these programs and the school system, but also many programs do not consistently consider *how* disability is being discussed (Cosier & Pearson, 2016). This matters since the way disability and disabled people are discussed in courses and teaching placements provides a foundation for the assumptions and expectations preservice teachers will make. In other words, when disability is taught in a deficit-based manner, it risks negatively impacting how preservice teachers view and teach their future students with disabilities.

To prepare students to work with neurodiverse populations, teacher preparation programs must have consistent messaging regarding their beliefs about disability. Teacher educators should be reflective about their understanding and views about neurodiversity and be able to model affirming, inclusive attitudes for their students. This can help teacher educators strengthen their insights regarding the dynamics of their students and may naturally provide an opportunity for them to discuss disability within the group work context. Since most teachers will likely have group or partner work as part of the classroom activity repertoire, their awareness of different communication styles and perspectives can help them better support *all* of their students in the experience.

The Double Empathy Problem & Camouflaging

Communication differences can lead to a variety of interpretations of messages, which can result in misunderstandings and unintended outcomes. In fact, 80% of autistic participants shared that they felt ostracized in group work, had difficulties getting questions clarified, and experienced challenges with resolving communication issues with members in their group (Drexler, 2024). Further complicating this, autistic students expressed a deep desire to be liked and accepted by their peers, leading to them volunteering for undesirable tasks or doing the majority, if not all, of the project alone. Autistic students also report that their group members have excluded them from group interactions and discriminated against them once the group members learned they were autistic (Drexler, 2024). These types of experiences can be indicative of a double empathy problem.

The double empathy problem is described as "a breach in the 'natural attitude' that occurs between people of different dispositional outlooks and personal conceptual understandings when attempts are made to communicate meaning" (Milton, 2012, p. 884). In other words, communication breakdowns occur because of *both* parties struggling to communicate and understand the other accurately, rather than only one type of person being responsible (Milton, 2012). Multiple studies have investigated the validity of this theory regarding the interaction styles of

autistic and non-autistic people. Recent findings have corroborated this theory by demonstrating that people communicate effectively with others with the same neurotype (e.g., two autistic people talking together or two non-autistic people talking together) but both groups struggled in mixed-group interactions (e.g., Chen et al., 2021; Crompton, Ropar et al., 2020; Crompton, Sharp et al., 2020b).

Although autistic empathy has been theorized upon for decades, understanding and interpreting behavior accurately is a challenge for non-autistic people as well (Chown, 2014). For instance, researchers have also found that non-autistic people have significantly more difficulty interpreting autistic emotions accurately compared to non-autistic emotions, which can have negative implications for mixed-group social interactions and relationship development (Cheang et al., 2025). These challenges may contribute to neurotypical people reporting less interest in interacting with autistic people and viewing them as less likable or reliable (Sasson et al., 2017). Although the double empathy problem has been largely studied in the autistic context, there is reason to suggest that similar miscommunications exist between other neurotype pairings (e.g., someone with ADHD or LD and a neurotypical person). These findings suggest that *both* neurodivergent and non-neurodivergent people need support in bridging these communication and interpretation differences. However, historically, autistic communication and perspectives have been stigmatized and pathologized (DeThorne, 2020). This is likely due to being a neurominority group, which often means neurotypical people experience less pressure to learn how to empathize with autistic people (DeThorne, 2020). Instead, much of the responsibility to remediate communication barriers is placed upon the autistic person by expecting them to assimilate to neurotypical norms (Zhuang et al., 2023).

Like most, autistic people largely desire to be accepted and liked (Drexler, 2024). However, many autistic people experienced years of discrimination, rejection, and bullying due, in part, to societal prejudice against autistic characteristics (Zhuang et al., 2023). Over time, many autistic people learn to mask (i.e., reduce the visibility of) these characteristics to protect themselves from these negative social experiences and victimization from peers. Some autistic people feel that it takes less effort to hide their autistic traits to appease their neurotypical peers than it does to try to explain autism or wait for them to accommodate their needs. However, masking has been associated with many negative outcomes, including, but not limited to: (a) negative self-image, (b) internalized stigma and feelings of inferiority, (c) burnout, (d) psychological distress, and (e) having their experiences dismissed or invalidated by others (e.g., employers, service providers, educators; Zhuang et al., 2023). Ultimately, this often leads to poor academic performance and mental well-being.

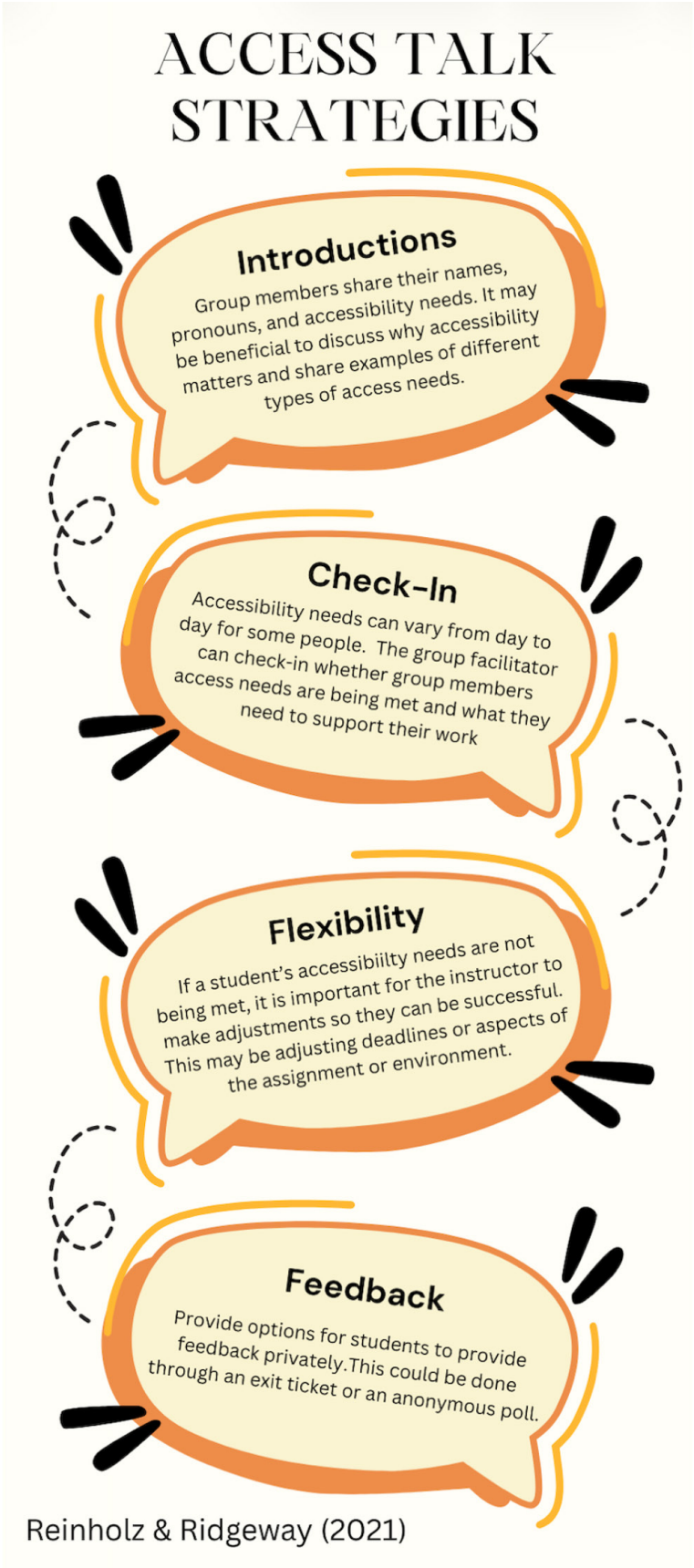
These communication barriers and the pressure to mask directly play into neurodivergent experiences in group work. As one student shared: "Although autism has had a lot more exposure over the years, people, they'd rather ignore things they don't understand. So, the more you seem neurotypical… the more it's easier to manage a group project" (Drexler, 2024, p. 44). Seeking acceptance from their group members, autistic students may avoid sharing their opinions or disagreement out of fear they will be seen as "a problem" (Drexler, 2024; p. 48). Many autistic people experience social anxiety in group work, since they become concerned about what they should say or how they should act and evaluate what they do accordingly (Drexler, 2024). This behavior may ultimately contribute to an autistic person experiencing burnout.

Recognizing the bidirectional nature of miscommunication and how expecting autistic people to (often solely) make changes to bridge these differences can have negative implications for neurodivergent students, it is crucial for teacher educators to understand these nuances and plan for how to help *both* groups of students bridge communication differences and foster an inclusive learning experience.

Instructor Versus Student Choice

Groups are typically created in one of two ways. Either the instructor assigns each student in the class to specific groups, or they allow the students to choose their group members themselves. The context matters as to which group selection model is being used (Drexler, 2024). For instance, student choice selection works well in situations where the neurodivergent students have established a good rapport with peers or have friends in the class. In contrast, in cases where they are not familiar with their classmates or have not established a rapport with them, it can become immensely challenging for them to choose a group. Choosing "wrong" risks being placed in a group in which the rest of the members are friends and excluding the student by not letting them be involved in the project or expecting them to do the majority, if not all, of the project alone while they socialize. In either situation, there is a risk for the student to develop increased stress or diminished feelings of belonging, which may compromise their learning. Having the instructor choose the group makeup when the neurodivergent student has not established strong relationships with peers can help reduce anxiety related to making a group choice (Drexler, 2024).

FIGURE 1: Access Talk Strategies



Accept and Normalize Diversity of Needs

The way neurodivergent individuals are discussed matters. Language is not neutral, and the way one talks about neurodivergence can indicate their beliefs and likelihood of maintaining ableist practices (Bottema-Beutel et al., 2024). According to Nario-Redmond (2019), ableism is a system of beliefs and practices that devalue and discriminate against people with disabilities while privileging those who are perceived as able-bodied or able-minded. This includes both explicit and implicit biases that contribute to social exclusion, stereotypes, and systemic barriers that limit opportunities for disabled individuals. Believing that neurodivergent students are less competent or capable than their neurotypical peers, while having an over-focus on neurotypical assimilation, can lead to negative outcomes. For example, underestimating the abilities of neurodivergent students can lead to ineffective teaching practices and inequitable educational experiences (Bottema-Beutel et al., 2024; Vaz et al., 2015). Unprepared neurodiverse groups may not only face challenges related to the double empathy problem but also may find that their goals and needs come into conflict with each other. To address this, teacher educators can consider doing the following:

Normalize Diversity of Needs. Everyone is unique. Each person has their own set of strengths and areas of need. Prior to beginning group work, the instructor should normalize "access talk" (Salvatore et al., 2024). Access talk is a framework used to guide talking about disability and ableism while also promoting a classroom culture in which advocating for what you need is expected and honored (Reinholz & Ridgeway, 2021). To successfully use access talk, the instructor should first discuss how people have diverse needs and the importance of accessibility and accommodations (Reinholz & Ridgeway, 2021; Salvatore et al., 2024). The instructor may want to provide examples of different types of needs and ways to accommodate them. Afterward, the instructor can utilize the access talk strategies, which include (a) introductions, (b) check-ins pertaining to accessibility needs, (c) allowing for flexibility, and (d) providing opportunities for anonymous feedback (see Figure 1 for details).

In addition to creating a culture of honoring diverse needs, it is important that teacher educators remain open-minded and receptive to student requests for help. It should be expected that differences in communication style, working preferences, and project vision may foster conflict (Salvatore et al., 2024). Teacher educators

may want to act proactively by sharing conflict-resolution skills group members could implement, reaffirming the importance of honoring the accessibility needs of both the student seeking help and their groupmates, and sharing some options students can use if they need support from them (Salvatore et al., 2024). When teacher educators practice what is taught to the preservice teachers, it may help motivate these students to engage in similar practices in their future classrooms.

Engage in and Model Practices

Explicit instruction is one of the most essential practices for educators to master (Aceves & Kennedy, 2024; Archer & Hughes, 2011). Oftentimes in coursework, preservice teachers are told that their instruction and feedback should be "structured, systematic, and effective" (Archer & Hughes, 2011, p. 1). Explicit instruction involves providing support (or scaffolds) and breaking information into smaller chunks to guide the student through an activity or the learning process more successfully. Archer and Hughes (2011) laid out 16 components of explicit instruction, some of which include (a) use clear and concise language, (b) monitor student performance, (c) sequence skills logically, and (d) begin lessons with a clear statement pertaining to the goals and expectations of the lesson (or activity). Further, they stated that educators should ensure that students have access to multiple forms of knowledge and receive instruction with embedded structure and support for it to be effective. Specifically, students need to know factual information (i.e., declarative knowledge), how to do the activity (i.e., procedural knowledge), and when the assignments are due or when and where they should use a given skill (i.e., conditional knowledge). However, the extent to which these practices are followed in the higher education setting can be variable.

Across multiple studies, neurodivergent students have shared a need for more explicit instruction practices used in group work (Drexler, 2024; Pfeifer et al., 2023; Salvatore et al., 2024). Specifically, participants requested clear expectations and learning objectives for group work assignments. The instructor may identify benchmarks that groups should reach at each stage of the activity and provide a checklist that the groups can use to help them keep on track (Salvatore et al., 2024). Instructors should also ensure that assignment directions are clearly written and broken down into manageable steps (Drexler, 2024; Salvatore et al., 2024). If an instructor determines that it is in the best interest of the students to complete this project as a group (see "Communication" section for rationale), they must make sure that the students will have access to clear declarative, procedural, and conditional knowledge that will foster their success pertaining to the project and with the group expectations. Building upon the reflective process related to one's views of a "good" learner and what is assumed they *really* need to know to be successful, teacher educators must consider whether their beliefs influenced the design of the instructions and how they might impact the success of students, especially neurodivergent ones (Salvatore et al., 2024). Based on the conclusions the teacher educator comes to, more specificity may be needed. Considering how common requests for more specificity and structure are from neurodivergent students, it is possible that many teacher educators are not consistently applying explicit instruction practices in group-work design. Despite best efforts, instructions and scaffolding of assignments and group work dynamics may not be specific enough to ensure inclusivity and accessibility to the project. As such, it may be useful to get feedback from a trusted external source (e.g., colleague, mentor) to ensure the instructions and level of scaffolding are strong. Even if the reviewer approves, providing multiple opportunities for students to provide feedback is recommended. Using exit slips or related weekly communication formats for students to easily and anonymously provide feedback allows the instructor to respond promptly.

Universal Design for Learning

Universal design for learning (UDL) is a set of guidelines used "to ensure that all learners are able to access and participate in meaningful, challenging learning opportunities" (CAST, n.d., para. 1). The goal of UDL is to make changes to the environment and instructional process rather than attribute the learning difficulties solely on the student, which moves away from the deficit-based perspectives of disability. The UDL framework offers specific recommendations to enhance accessibility based on engagement, representation, and action and expression (see Table 3). As mentioned in the previous section, teacher educators and preservice teachers alike must understand, accept, and plan for diversity of needs and learning/working approaches in their classrooms. Using UDL-aligned practices can support instructors and preservice teachers in addressing individual needs while also providing an avenue for all students to best demonstrate their learning.

Compassionate Pedagogy

Compassionate pedagogy is described as "seeking to create a learning environment that notices distress and disadvantage of all students and staff and takes steps to reduce these barriers to learning" (Killingback et al., 2025, p. 3). Neurodivergent students face a plethora of stressors in higher education; however, some that relate to group work include navigating the unwritten

TABLE 3: Overview of the Universal Design for Learning 3.0 Guidelines (CAST, n.d.)

Principles	Guidelines	Example Strategies for Group Work
Engagement *Motivate student learning*	*Value Student Interests & Identities*	• Give student choices • Ensure group work relevance to students' lives is clear • Address biases and potential distractions (e.g., sensory needs)
	Sustain Effort & Persistence	• The purpose of the group work should be clear to students • Promote student sense of belonging and an inclusive community • Give regular, specific, goal-focused feedback based on student strengths and needs • Provide supports and strategies to facilitate student and group growth.
	Emotional Capacity	• Support student reflection on group dynamics • Build student appreciation of their personal strengths and those of their groupmates • Develop strategies for navigating challenges and model their usage
Representation *Present information in multiple ways*	*Perception*	• Provide multiple ways to access information • Include multiple perspectives in the group work project process (e.g., information sources) • Be flexible in how students display information to heighten accessibility of materials
	Language & Symbols	• Ensure students understand term and symbol meanings • Incorporate multiple forms of media to enhance student/group access to content
	Building Knowledge	• Make clear connections with student's prior knowledge and the group project • Emphasize the big ideas and important information/skills that students should learn from this project. • Apply what was learned in the activity to other relevant contexts for the students
Action & Expression *Options in how students demonstrate learning*	*Interaction*	• Be flexible with how students respond to questions or group work components • Be flexible with student group work environment (e.g., adjust lighting that may be too strong for a student, allow them to meet in a quieter space)
	Expression & Communication	• Scaffold the group work assignment • Provide multiple opportunities for students to share their ideas in the group work process • Allow and be accepting of multiple ways for students to communicate their learning
	Strategy Development	• Provide support for students to organize group work tasks • Be reflective and proactive regarding potential challenges students may face in the group work activity • Attend to students' individual and collective group progress • Collaborate with students to determine ways to address exclusionary behaviors if they happen in the group to promote more inclusive experiences

Note. Visit www.udlguidelines.cast.org for more information and strategy ideas.

expectations and norms of the university, contending with previous negative educational experiences and lingering concerns about whether the current course will be different, and navigating social-communication aspects and double empathy problem challenges that may promote masking behavior (Hamilton & Petty, 2023). Compassionate pedagogy practices, such as being flexible about grading, timelines, and methods for disseminating information, and instructional and activity delivery (using UDL; Hamilton & Petty, 2023), can enhance all students' (especially neurodivergent students') group work experience. Neurodivergent students advocate for instructors to be flexible in the group development and grading process and to provide clear directions for activities and discussions in both spoken and written formats (Drexler, 2024; Salvatore et al., 2024). Specifically relating to grading and group flexibility, neurodivergent students state that instructors should take into consideration who chooses the group make-up (see Reflect section for more information), the level of necessary engagement within the group (e.g., does everything have to be done as a group or can some things be done individually), and, in terms of grading, how balanced the work allocation was between group members (Salvatore et al., 2024).

In addition to flexibility in group work design, instructional/activity delivery, and grading, another significant compassionate pedagogy practice that should be modeled by the teacher educator is leveraging student strengths (Hamilton & Petty, 2023). As suggested earlier, neurodivergent students often have years of experience with being pressured to mask their neurodivergence or be

prepared to experience negative social consequences, which can lead to low self-esteem (Zhuang et al., 2023). Getting to know the students to determine what they need for support, what they are passionate about, and their strengths can allow instructors to determine which group roles they would thrive in. Leveraging their strengths to facilitate their success within their group may help neurodivergent students cultivate better self-images, develop greater pride in who they are (and confidence), and help build more positive neurodiverse group experiences.

CONCLUSION

Group work experiences can be challenging for anyone, but especially for neurodivergent students. Teacher educators can help facilitate positive, successful group work experiences for neurodiverse groups by demonstrating **C**lear communication, taking an **A**ctive role in the group work process to ensure it is an inclusive and equitable learning experience, **R**eflecting upon their understanding about neurodivergence and disability, and **E**ngaging in and modeling effective practices such as explicit instruction, UDL, and compassionate pedagogy. To cultivate future teachers who will ensure students are meaningfully included, provided explicit instruction and support to access curricula and activities, know they are believed in and are seen as capable, and feel they belong, it is imperative that teacher educators model this for them first.

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