UNIVERSITY OF PLYMOUTH

7 Steps to:
Considering neurodiversity in online learning

Overview

Neurodiversity (ND) is the term used to cover conditions such as Autistic Spectrum Disorders (ASD), Attention Deficit Hyperactive Disorder (ADHD), dyslexia, dyspraxia, dyscalculia and Tourettes. It has become common to talk about ND because it treats these conditions as variations in brain processing rather than as abnormalities or deficits in thinking (Clouder et al, 2020; Rosen, undated). It is important to recognise that within student groups there will be those with ND (as well as other types of diversity, both apparent and hidden). In the UK the Equality Act (2010) requires that teaching is inclusive, and this is equally important in the context of designing and facilitating online learning.

The advice given here follows core principles of the Universal Design for Learning (UDL) approach, which uses multimodal forms of presentation, activities, engagement and feedback so students can access learning in flexible ways to best suit their needs and remove barriers to their education (CAST, 2018; Morin, undated). Because of its multimodal and flexible approach, UDL works regardless of whether students' difficulties are diagnosed and disclosed.

This 7 Steps guide can be used to shape individual and module-level practice, but also to consider online design at programme-level. This is important so that students experience consistency and are not confused by too much variety in approach. Whilst not without challenges, in many ways the flexibility offered by the online environment is potentially much better suited to handling ND than traditional face-to-face classes and, as with other aspects of inclusivity teaching, what is good practice in design for ND students, is typically good practice for all.

1. Consider how content is presented

ND students experience challenges in sensory overload and information processing, and some can be easily distracted. Online content can help because students can engage with it from home, and they get the opportunity to pause, rewind, re-read and re-watch content (Clouder et al, 2020; St Amour, 2020). When packaging course content, draw on a variety of resources – key academic reading, websites, videos, graphics, interactive tools etc – allowing students the flexibility to choose what resources they prefer to use. This is because ND students can have quite specific preferences in the materials that they find easier to understand. Dyslexic, dyspraxic and ADHD students, for example, perform better in their verbal and visual abilities than with reading (Grant & French, 2017, p5) so include resources that are not 'text-dense' as part of the mix.

Adopt a flipped classroom approach to offer content, and make efficient use of pre-existing resources so that you can prioritise your time for online engagement. In offering content in a variety of formats, some students may feel the need to access all of it – just like some students feel they need to read every item on a reading list. This will be particularly true for ASD students who have a need for detail and who are more likely to rigidly follow instructions. Try to balance variety and quantity. Highlight key resources that you want students to access and make clear the optionality of others e.g. by saying, 'choose one of the following'

2. Set and structure activities

Don't leave students to access materials without any guidance as ND students can lack 'executive function' which makes self-management challenging (Clouder et al, 2020). Providing activities can help guide students' learning and offer structure and routine (see 7 Steps to: active learning in online environments). Digital learning environments provide a wide array of tools which can be used to make online learning active. As with content, select tools that offer diversity and formative feedback opportunities (See 7 Steps to: Providing online formative feedback). Include activities that develop cognitive structures, patterns, and connections as these will be particularly useful to students with ND.

3. Design your synchronous teaching

Consider how you use synchronous teaching in your online design. You may want to hold seminar groups, or host group chats or drop-ins, where students can ask questions. This can be done using video conferencing via Zoom or webcasts using Panopto (OpenLearn, undated, & 7 Steps to: getting the most from zoom). Be considerate that ND students may experience some of the same challenges in synchronous online environments that they do in face-to-face ones related to the immediacy of the content and language, and the reduced control students feel over their learning. It is advisable to only use synchronous teaching in ways that offer tangible supplementary benefits to asynchronous teaching. Lecture-type content is rarely best achieved in a synchronous session whereas discussion and the chance to ask questions (your students of you; you of your students) are more suitable. Even though ND students may encounter challenges in synchronous sessions, the chance to 'meet' may be important for many in your class,

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providing valuable social interaction, support and reducing isolation. However, also include asynchronous options, e.g. discussion boards, so that students have flexibility to interact in these ways to suit their needs.

4. Assist dialogue and collaboration

When we learn we do so through both individual study but also through dialogue and collaboration, so building opportunities for this is important, e.g. by setting group tasks (see 7 Steps to: Creating online learning communities). Dialogue and collaboration can take place in both, synchronous or asynchronous ways. For ND students, (as well as the introverted), having time to compose responses in asynchronous settings can be extremely helpful. Design flexible ways for students to interact in group settings. Support and manage collaboration (See 7 Steps to: using group work in your teaching) and in doing so, encourage students to manage their group in ways that suit them. Promote functions in your digital learning environment to help them do this such as forums, wikis and project management tools. Encourage groups to manage their work by sharing any written work in advance of online meetings so that ND students have time to read it in advance.

5. Be supportive

Be visible and proactive in supporting students and be understanding and non-judgemental; what may seem obvious because you wrote/designed the module, may be confusing to any student, not just those with ND (see 7 Steps to: supporting students in online learning). Consider including scheduled live Q&A sessions where students can ask questions but also offer other options like Q&A forums that you check and respond to regularly. Build on any monitoring (such as module engagement data and formative activity performance) and use your professional judgement to follow up with any student over which you have concerns. This is good practice for all learners, but is an important safety mechanism for supporting ND. Some students on your module will have disclosed conditions so it is worth remembering and using this information when in dialogue with students. Do not be afraid of discussing the support needs of students with ND. The advice is always to ask about and discuss their needs rather than to assume.

6. Re-think assessment

Changing to online delivery presents a good opportunity to review module assessment, particularly as some forms of assessment may not be possible in a wholly online format (see 7 Steps to: online summative assessment). Neurodiverse students are just that – diverse – so there is no single solution to inclusive assessment. However, a great many ND students struggle with time constrained written examinations so moving away from these will be particularly helpful. Use UDL principles to guide your shift to online assessment, including flexibility in assessment options (CAST, 2020, Jopp & Cohen, 2020). Work with the benefits of online technologies which provide many options in terms of digital assessment tools.

7. Provide clarity and consistency

Online module delivery needs to be clear and consistent in how learning materials and activities are presented, and in how students are expected to use them (see 7 Steps to: Creating online learning communities). Online modules should not just be an overwhelming repository of content. Keep the learning resources and module documentation as concise, clear and consistent as possible (University of Bristol, undated). This is particularly important for ASD students who are prone to getting overwhelmed by lack of structure, new situations and unexpected changes (Van Hees et al, 2014). Other ND students, who may struggle with text processing, will also benefit from clear and consistent design, particularly if this is aided by the use of visual tools for conveying structures and elements (Grant, 2017). When designing, consider what key structural elements might help signpost and structure your overall and weekly delivery, such as visual schemes. Clarity and consistency ought to also be considered, not just at a module level but across a programme too, so that students experience consistency between modules.