



# How Can Block Teaching Adopt Universal Design for Learning to Meet the Needs of Disabled Students?

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## ABSTRACT

This paper proposes that block teaching can adopt universal design for learning (UDL) to meet the needs of disabled students. Here we propose that UDL and block teaching are fully compatible with one another. To demonstrate this, we utilise the three principles of UDL: (1) engagement where we give students the opportunity to choose how they learn; (2) representation where we allow students to access learning materials in a variety of formats; and (3) action and expression giving students the opportunity to demonstrate their learning in different ways. Adopting a UDL perspective to block teaching will make for a more equitable learning experience for not only disabled students but students overall.

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In higher education (HE) block learning and teaching contexts, students undertake and complete a single module at a time, before progressing onto the next module. This differs from more traditional approaches where students undertake multiple modules at the same time. Block teaching has become increasingly popular in the UK in recent years, after being introduced by Victoria University in Melbourne, Australia (McKie, 2022). Whilst Victoria University are viewed as leading a resurgence of interest in the current trend for block teaching, block teaching was around in the early noughties (Flattery & Thomson 2022).

At the same time, Universal Design for Learning (UDL) has emerged as a framework designed to improve learning for all students (CAST nd, also see Merry 2023a). Whilst these two learning methods have largely been discussed separately, Merry (2023b) proposes that the successful implementation of each share similar characteristics. This paper proposes three ways staff adopting block teaching can integrate UDL to support all students in the classroom, especially disabled students based on our experiences at De Montfort University (DMU), Leicester, United Kingdom (UK). These align with the principles of UDL which are:

1. Engagement – how do we interest and motivate our students;
2. Representation – how do we present information to students; and
3. Action and Expression – how we enable students to demonstrate their learning (CAST nd).

The suggestions we propose are: (1) giving students the chance to choose how they learn whether that be online or in-person; (2) giving students the opportunity to demonstrate their learning in a variety of ways; and (3) giving students the opportunity to access information in a variety of formats.

To contextualise the importance of the argument two points should be noted. First, 15.9% of UK HE students disclose a disability (Advance HE 2023). Results of the UK National Student Survey (NSS) indicates disabled students are amongst the groups least satisfied with their university experience (Dickinson 2023). Comparing students reporting a disability to those who do not on data from full-time study in 2023 for all subjects revealed differences. Those with disabilities were less positive than those without disabilities in several areas including resources and assessment and feedback (Johnston & Anwar-Westander 2023). Hence the need to provide education provisions that are accessible and enable them to have a full learning experience (e.g. lecture capture). Such provision is a condition of registration for the UK HE regulator, the OfS. Second, support put in place for disabled students, in response to changes in the Disabled Students Allowance such as lecture capture provide benefits for all students. An example of this is how recordings of lectures was originally brought in to support students with disabilities and is now available to all students. This is beneficial since it enables any student to go back and relisten to material.

Evidence for our arguments here come from our own experiences and research as educators and literature within the field both empirical and theoretical. In this, we draw upon the ‘Cheese Sandwich’ approach of Merry (2019, 2021a). Here the time spent in the classroom is an active process with engagement between the tutor and peers supporting the development of higher-order cognitive skills (cheese) the bread which sits each side cheese is the time before and after the active learning session which is dedicated to engaging in receiving content (e.g., a lecture capture), lower-order cognitive skills, self-assessment and reflecting on progress (bread). An example here could be asking students to watch a 30 minute lecture online before the session and then use the interactive in person session to dig deeper into certain concepts. Students can then review their learning after the session. This means the time spent in the classroom is an active process whereby students are engaging in activities as a pose to receiving content in a lecture-based context.

## GIVING STUDENTS THE CHANCE TO CHOOSE HOW THEY LEARN (ENGAGEMENT)

The COVID-19 pandemic led to all universities moving to online teaching almost overnight. Until then there was limited opportunity to access synchronous teaching online at universities within the UK unless in distance-learning contexts. The post pandemic period has seen

many institutions moving back to a predominantly in person approach to delivery, with little opportunity to access learning synchronously online. This was something which occurred across the sector and influenced by the Government's desire for students to go back to face-to-face engagement.

This article proposes the importance of universities having the opportunity of online learning/teaching for students. A distinction needs to be made between distance learning, whereby students undertake most of the course online with maybe only occasional opportunities to interact with tutors and peers, and online learning in which students can access taught sessions live online if needed. Note that here we use the terms 'online learning' and 'online teaching' synonymously. This differs from accessing online resources as this will be done with no tutor interaction.

Wilkinson (2022) argued universities should maintain the online learning utilised during the pandemic to ensure that all students have access to the curriculum, especially students with disabilities. For example, a student with chronic fatigue syndrome could have the energy to attend a seminar online but not to travel to attend in-person. Through enabling students to access sessions either in-person or online when enrolled as an on-campus student, students unable to get onto campus for a variety of reasons (disability, illness, caring responsibilities etc.) may still be able to access learning opportunities, such as seminars, remotely. We propose students should still be able to access the curriculum online when required, with content delivered in such a way that it allows it to be taught online. This would enable students who are unable to attend in person access to the same learning opportunity (e.g., a seminar) as those on campus.

It must be appreciated this would not be possible for all teaching situations (e.g., where specialist laboratory space is required). We propose this would work through a blended learning format which is defined by Barber (2021) as 'teaching and learning that combines in person delivery and delivery in a digital environment'. However, we agree with the OfS blended learning review (OfS 2022) definition that we should add Garrison and Kanuka's (2004) 'thoughtful integration' to this. In thoughtful integration, where technology has to be utilised in a systematic and strategic manner, staff would have the opportunity of offering learning opportunities both online and face-to-face. When it comes to hybrid learning, where staff teach students both online and face-to-face at the same time, the OfS blended learning review found this to be challenging for both students and staff largely due to technical reasons (OfS 2022). Therefore this is not a recommendation that we propose (ibid.).

Whilst we appreciate the challenges of delivering blended learning experiences, such as the requirement to train staff in the technology, how module contact hours would be portioned between online and face-to-face, and consideration of staff workload, this approach considerably increase access for students. This approach would be useful in block format given the shorter but more intense teaching period for a module and the potential problems this could cause if students missed a few weeks. A block-and-blend approach has been found to increase student attainment and have positive implications for self-reported student engagement (Buck & Tyrell 2022). This research from the University of Suffolk adopted a mixed-methods approach to examining block and blend teaching in 20/21 and comparisons were made for quantitative measures such as deferrals between 19/20 and 20/21. On average students receiving block-and-blend teaching received higher assessment grades compared to non-block, traditional teaching. There were fewer deferral requests made in block-and-blend compared to traditional teaching.

Whilst online teaching was found to be beneficial for many students with disabilities (e.g., Wilkens et al. 2021) there has been challenges such as lack of accessibility to teaching materials and poor captioning (e.g., Wilson et al. 2020). If online teaching is going to be adopted, it is important to reduce some of the barriers disabled students faced during the pandemic. A barrier deaf students found was poor captioning for online sessions (ibid.), so institutions would need to ensure there is clear captioning. Universities would need to ensure that students have access to the appropriate technology to access online teaching as lack of appropriate technology was found to be a barrier for online learning during lockdown (Yeung & Yau 2022). UDL can be adopted as a strategy in the case of digital poverty (Merry 2021b). For example, if a transcript is presented of a video and someone does not have the bandwidth to watch the video, they could still view the transcript. Finally, universities need to consider the interfaces

(web pages and learning zones) students are interacting with when learning, and ensure they are accessible and well-structured. Such interfaces should be compatible with accessible technology, such as text-to-speech.

Alongside considering where people are learning we need to consider the modes of learning. It is appreciated that most of this is predetermined by the course of study (e.g., practical studies like nursing require practical sessions). However, there should still be flexibility due to the diversity of students at university. For example, it would be better to have pre-recorded material students watch before a session as part of a flipped-classroom approach which has been found to be beneficial in block teaching format (e.g., Kugler, Gogineni & Garavalia 2019). Such a method enhances block delivery as students could use the pre-recording to gain contextual information and be introduced to concepts and then use the teaching session to apply them as proposed by the 'Cheese Sandwich' approach (Merry 2021a). Given the pace of block this would be a useful strategy.

Merry (2023c) has demonstrated the usefulness of the cheese sandwich approach in a 3-day intensive learning course for those new to teaching in HE. Merry (ibid.) surveyed participants on the course and they reported the 'Cheese Sandwich' approach led to a positive learning experience for them. Whilst this was 3-days we propose this can be equally applied to a block period. This may increase student engagement and be beneficial to students with disabilities, as they'll have the opportunity to review the learning materials beforehand.

Given block teaching is delivered over a shorter period it is essential that tutors are aware of the learning needs of their students. UDL gives tutors multiple learning strategies to bring into the classroom which would suit a variety of learning styles. Given the time-sensitive period of a block module, the need to be accessible, inclusive, and equitable (Merry 2023a) in one's teaching is even more important compared to the more traditional teaching format, in which a module runs over a semester or year. The more contact time will enable tutors the opportunity to work iteratively with students to see what is working and what is not.

## **ENABLE STUDENTS TO ACCESS LEARNING MATERIALS IN A VARIETY OF FORMATS (REPRESENTATION)**

As well as considering how students are learning, we need to consider how we are presenting information to students. It used to be the case that students could only access learning materials by reading books and journal articles. There are now a wider range of formats to access such as podcasts, videos, webinars etc., as well as traditional books and journals. Since students have different learning preferences, we recommend giving students the opportunity to access learning materials in a variety of formats supporting the different ways students perceive and comprehend information related to learning.

One of the barriers that students with disabilities face is materials not being in an accessible format (e.g., Bartz 2020). For example, if an academic recommends a book that can only be found in paper format, those with sight loss and dyslexia may have to scan pages of the book before reading it to put it into an accessible format. Ensuring there are online options for all books will give students the option of how they access that information, increasing accessibility.

Co-creation of materials could enable students to have access to a variety of learning resources. Co-creation of materials is when students are involved in creating the learning materials with tutor input (Bovill et al 2016). Co-creation can lead to increased attainment and student retention (Lubicz-Nawrocka & Bovill 2021). The process of co-creation could involve asking students to represent information in different ways to support different students. For example, if asked to present a model of health behaviour change, some may choose to represent it as a diagram, some may choose to represent it as a piece of written text, whilst others an audio recording. By doing this we are not only facilitating deep learning in block teaching but enabling the presentation of materials in a variety of formats to support different learning preferences, increasing accessibility. An example of co-creation used in our institution in a 1<sup>st</sup> year block module asked students to think of topics they were most looking forward to studying which was then used to create topic choices for a blog post assessment. Through this mechanism students were co-creating their assessment with tutors.

This principle of UDL fits well with block teaching given the shorter time frame of module and assessment completion (Merry 2023b). Students learn differently and students with disabilities need to be supported to gain information in an accessible format.

## **GIVING STUDENTS THE OPPORTUNITY TO DEMONSTRATE THEIR LEARNING IN DIFFERENT WAYS (ACTION AND EXPRESSION)**

As opposed to using only traditional essays and exams to demonstrate learning, neuroscience tells us that students require multiple ways to demonstrate their learning, given that different neurological mechanisms are activated for different learning strategies (Willis 2006). There is an opportunity for students to be assessed against the same learning outcomes but demonstrate their learning in a way that reduces or removes barriers. For example, for a systematic review assessment, students could demonstrate their learning either via writing a review or via a presentation format. Both would enable students to demonstrate key elements including literature searching, synthesis of materials, key themes emerging, and implications and recommendations for future research. Provided the learning outcomes are well-written, giving rise to a clear assessment construct, students could be assessed against the same assessment criteria, despite choosing different outputs. A second way students could choose how they demonstrate their learning is by selecting the topic programme they wish to focus on in an assessment. In an essay for a MSc module on Psychological Wellbeing students can select any topic from the module they wish to base their essay on giving them the opportunity to write on a topic they feel confident. It is important to have this flexibility as there is no 'one size fits all' when it comes to learning and assessment.

Block teaching requires assessment changes which are compatible with UDL principles. It may be the case that in a 7-week block there are 2 assessments therefore it needs to be considered how students will be assessed. Rather than two distinct assignments a patchwork assessment could be utilised. The patchwork assessment requires students to complete mini, formative pieces of coursework which are 'stitched' together as a coherent whole to form a single summative piece (Jones-Devitt, Lawton & Mayne 2016). Such an approach could be a useful technique to embed with ongoing formative assessment and feedback. Giving students options as to how they complete the formative pieces enhances engagement with and access to the assessment process. An example of a patchwork assessment could be a portfolio where students complete separate elements, receive formative feedback on each piece, and submit the final version for summative assessment. The advantages of a patchwork assessment is it enables students to have consistent focus on the assessment enabling feedback to be gained to iterate the work and enable students to reflect on their learning/work. This portfolio style of patchwork assessment was used in a first-year block where during the teaching period students could work on the assessments within sessions and receive feedback. This is particularly useful given the condensed nature of block teaching. Caution must be taken to ensure that patchwork assessments are used appropriately, and promote deep learning as well as ensuring students are able to utilise a diverse range of resources to demonstrate their learning (Jones-Devitt et al. 2016).

The UDL principle of enabling students to demonstrate their learning in multiple ways fits with block teaching given students will need to complete assignments within that 7-week block and two essay based assignments will be too much and will test the same skills. Block teaching gives the perfect opportunity to utilise different real-world assessment modes (i.e., assessments which correspond to what students will do in workplace settings such as problem-based learning) to enable students a variety of ways to demonstrate their learning.

A key dimension of UDL is enabling students to develop learner assessment literacy. Assessments must be 'learnable' and therefore barriers through UDL principles need to be removed so students are able to achieve this. Students need to learn how to both 'do' the assessments but 'know' the assessments as well and what is required (e.g., building up an expertise in interpreting marking rubrics) and assessments can then become a learning strategy in themselves and a way of assessing learning.

UDL and block teaching can collectively provide an accessible and inclusive education for all students, especially those with disabilities. This is developmental in nature with key areas for future research and discussion.

1. How can block teaching and UDL be integrated in practice-based subjects?
2. What is the differing impact of disabilities in the block teaching classroom and how can UDL be utilised to support such a variety of learners?
3. How can block and UDL be integrated to provide assessments linked to graduate attributes?

We propose a more flexible approach to teaching is important given the nature of our students. Block teaching combined with flexibility UDL principles promotes lifelong learning and equity of learning opportunities. The focus on lifelong learning is something which has been encouraged by the UK Government Lifelong Learning (Higher Education Fee Limits) Act 2023, which will give students from 2025 access to a lifelong long entitlement of £37,000 which can be spent over their working lives to pay for modules, short course and complete degrees (Gov UK, 2023). Since UDL is about mastering 'expert learning' and one dimension of that is having a personal knowledge of how to master content it is essentially teaching people how to learn which fits well with the principle of lifelong learning.

We have argued UDL should be incorporated with block teaching to support disabled students and the student population more widely. We encourage all universities to adopt UDL principles, regardless of whether they utilise block teaching, since it is an effective learning framework ensuring accessibility and inclusivity for all students creating an empowering educational experience.

## COMPETING INTERESTS

The authors have no competing interests to declare.

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