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through UDL

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Co-creation of an Inclusive Study Skills Portal: Removing Barriers through UDL

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ABSTRACT

This paper will reflect upon how the development of an online study skills portal within a HEI was enhanced by using Universal Design for Learning (UDL) principles and a community of practice (COP). In response to the crucial need to retain students and support their academic development, this paper will explore how the UDL design principles were applied in creating a study skills portal. This paper will examine current literature and thinking for both UDL and the need for students in HE to develop study skills. A reflective discussion will consider how using accessible technology, the development of student-centric materials, and working within a community of practice can enable the removal of barriers for students accessing materials to support and develop their study skills. The paper concludes by emphasising the value of underpinning and progressing the design of a study skills resource using UDL and COP frameworks.

Keywords

autism, neurodiversity, self-views, Universal Design for Learning (UDL)

INTRODUCTION

There are more students accessing higher education (HE) globally than ever before with 235 million enrolments (UNESCO 2022). In the UK, Hubble and Bolton (2021) highlight that the number of students with a known disability has increased by 47% between 2015-2020. The Higher Education Statistics Agency (HESA, 2024) states that in 2022/23, 26% of almost 3 million students in the UK were international students with a permanent address outside the UK, and also noted the rapidly growing numbers from India, China and Nigeria. Students are arriving into HE from a diverse range of backgrounds and will have differing expectations of education and a range of learning needs (Merry, 2024). It is imperative that Higher Education Institutions (HEI's) acknowledge this through the creation of purposeful and authentic learning environments to enable learner agency (CAST, 2024a).

Transitioning into HE is not a linear or time-constrained process. Deleuze and Guattari



(1987, p. 342) suggest that “*becoming has neither beginning nor end, departure nor arrival origin nor destination*”. Any interventions to encourage integration, adaptation and to guide students on their journey into HE must be mindful of where students are in the process, especially if their initial priorities lie with the “*social, personal and organisational aspects of university life*” (Hughes & Smail 2015, p. 475). Alongside this, institutions are conscious of their responsibility to encourage “*the range of skills that students are expected to develop from the holistic education offered*” (Wong et al., 2022, p. 1340). These skills are widely known as graduate attributes, which may include social responsibility, resilience, problem solving, communication and digital citizenship (University of Worcester, 2024). Such attributes are connected to graduate employability and the culture of the university. The process of embedding and demonstrating them within courses is not without difficulty (Wong et al., 2022). Balancing this process requires a shift in thinking about how HEIs support new students and to re-imagine how they design a curriculum to enable the acquisition of skills and attributes.

While study skills resources need to be both student-centered and supportive of graduate attribute development, other external circumstances cannot be ignored. Following the global Covid-19 pandemic and a return to teaching on campus, in our institution there was a need to reimagine the existing study skills website as students moved into HE. Additionally, student retention received greater attention due to both a cost-of-living crisis and unresolved funding issues, which continue to have an impact on the finances of both students and UK HEI’s (Office for National Statistics, 2023; Ogden & Waltmann, 2024).

This paper is a project reflection and explores the use of the Universal Design for Learning framework (UDL) to reimagine a study skills portal within a UK HEI. Rose et al. (2002) explain that UDL offers an opportunity to remove barriers that affect students accessing learning and it considers the myriad ways in which students learn. Alongside this the innovative approach of developing the portal through a cross-institution Community of Practice (COP) (Lave & Wenger, 1991) is presented as a factor in achieving multiple means of engagement, representation and action and expression for our learners, whatever their discipline and background.

Literature Review

The development of the institution’s study skills portal coincided with a landscape of working and studying in HE within post-pandemic England, during a cost-of-living crisis. The portal was developed with a desire to remove barriers for students with varying backgrounds and experiences and to support their transition and adaptation to study. This was achieved through the application of the UDL framework, utilising accessible technology, and working within a Community of Practice. This exploration of

the literature will delve further into the landscape in which this project occurred.

Successful student transition into HE has become an important area for practice, policy and research, not least because of the connection between successful transitions throughout a student's journey, and student retention (Devine 2018; Pittaway 2019). Nonetheless in recent years there has been critique of the practice of supporting students in transition (Gale & Parker, 2014; Gravett, 2021; Taylor & Harris-Evans, 2018). Gravett and Winstone (2021, p. 1578) suggest that current transitional curriculums are problematic, as a narrative that focuses on retention fails to *"acknowledge the complexity, fluidity and multiplicity of students' lived realities."* Students' lived realities post-pandemic may include isolation, a negative impact on study habits, and a lack of equipment and a space conducive to study (Aristeidou & Cross, 2021). Resources which support study skills development must focus on rebuilding student confidence and new habits for successful transition and study.

Within the institution, study skills are integrated within courses to varying degrees, with some examples of modular study skills delivery. In the literature, course-specific or context-relevant study skills teaching is favoured over add-on or remedial skills support (Barrie, 2007; Prymachuk et al., 2012). Yet part of the challenge of teaching study skills, whether in person or online, is the lack of consistent definitions and the misconception that these skills are generic (Richards & Pilcher, 2023). Furthermore, each student will have differing needs that may evolve as they move through a programme of study, and because of the nature of their course. Variation in learners and how they engage in learning is now standard (Dalton, 2020). There has been a shift in the needs of students as policy and the student demographic has changed within a widening participation agenda. Study skills resources need to be relevant and accessible for all students, with the potential for co-creation between teaching staff, learning support and technology experts to support this.

Universal Design for Learning (UDL) is a framework that offers an opportunity to remove barriers that affect students accessing learning (Rose et al., 2002). The framework has three core principles that need to be considered when designing the curriculum: Multiple means of Representation, Multiple means of Engagement, and Multiple means of Action and Expression. These principles support the removal of barriers that can and have excluded students from the ability to engage effectively. Novak and Tucker (2021, p. 17) suggest that even with having UDL strategies in place, if they aren't underpinned with the *"belief that all students can learn, regardless of variability"* then the framework will not be effective. Merry (2024, p. 23) also emphasises that *"as teachers we must be more responsive to diverse learner needs, spending more time making learning accessible, inclusive and equitable than we did in the past."* A flexible and accessible study skills resource underpinned by UDL principles should encourage students to reflect upon their experiences and plan how they can

build on and adapt these to flourish at university.

Bracken and Novak (2019) propose that to optimise students' learning within HEI's we must capitalize on the use of technology to reach all students, particularly those who have been hard to reach. Merry (2024) suggests that students can use technology to customise their learning resources and adapt content to meet their needs. This flexibility can support student autonomy as they make the transition into and through HE.

To balance the pressures of student retention and funding with the need to engage and respond to a diverse student body, it is imperative that experts within a HEI collaborate to bring multiple perspectives to curriculum design, and specifically skills support (Purcell & Barrell, 2014). A Community of Practice (COP) approach offers a framework for this collaboration. Wenger et al. (2002) define a COP as a group of people that share a passion about a concern or problem. Their focus is to develop knowledge and expertise through being together. Furthermore, a successful COP is one with "*a strong bond of communal competence along with a deep respect for the particularity of experience*" (Wenger 1998, p. 214). A COP provides the different perspectives, experiences and expertise needed to focus on and deliver a solution. Matsuo and Aihara (2022, p. 1) propose that a COP is "*a driver for knowledge creation*", and they emphasise the importance of intrinsic motivation of members for sharing knowledge across boundaries. The COP should maximise the potential of members' explicit roles ("*well-defined*") and implicit roles (e.g. "*well-tuned sensitivities*") to enable them to share and use their expertise (Campbell et al., 2022, p. 174).

The application of UDL principles by a COP comprising a range of individuals with study skills, subject and technical expertise, offers an innovative solution to the development of study skills resources for students. In the following sections, we explore the creation of a study skills online portal in a HEI, sharing insights into its development following UDL principles.

What happened

In 2022/23, an Education online short courses project required the development of academic skills resources to support a cohort of distance students who may have been out of study for some time. The COP for this initial development of the study skills portal comprised three people each with an explicit role: Academic, Subject Librarian and Learning Technologist. The Academic member brought into the COP the finely-tuned awareness of what it means to become a student in HE, with the various barriers, circumstances and priorities that can impact upon a student's successful transition. The Subject Librarian brought to the community a wider sense of the situation of study skills across the institution, having also researched the importance of collaboration across teams to promote students' academic skills within a subject context (Purcell & Barrell,

2014). The Learning Technologist's expertise in and access to educational software was critical to re-imagining the way study skills could be presented, adapted and accessed by all students.

This first iteration of the interactive study skills portal covered topics including learning journals, reading, criticality, reflection, and holistic self-care. The course-authoring software Articulate 360 was recommended by the expert Learning Technologist as a platform for creating the portal. With interactive text, images and multimedia, it is designed to be visually engaging while also being fully accessible, supporting the use of screen readers including JAWS, NVDA, VoiceOver, and TalkBack. Alternative text was applied on all images and alternative formats provided for all activities, including matching and ranking exercises. Where appropriate, content was provided through embedded video (and later, podcasts). The range of activity formats, images and templates included within the software ensured that we could offer "*a multimodality approach to learning*" (Levey, 2023, p. 479) through an adaptable and flexible resource.

Alongside the launch of the study skills portal for Education students, the institution's Academic Induction subgroup was focusing on the development of resources to aid transition into HE. It became clear that the study skills portal could be used as a model for providing study skills resources to new students, alongside an expanded range of themes to support study skills development through HE. The COP recognised the value of the study skills portal in providing consistent materials which academic tutors could recommend or 'prescribe' to their students during tutorials or within module sessions. These direct/spontaneous and indirect/planned means of engagement could increase students' motivation to work with the portal (Levey, 2023). We needed to draw on our experiences and reach into the wider HEI community to grow the COP and enable the principles of UDL to breathe within the co-creation of the new, expanded portal.

Collaboration within a larger COP prompted new ideas for the study skills portal to support transition into and through HE for all students. As a result, in the summer of 2023, the new two-part study skills portal was introduced (<https://studyskills.wp.worc.ac.uk/>). The *Starting at University* section aims to support transition of new students into the HEI. It includes direct input from IT experts (*Get IT-ready for study*), librarians and colleagues in professional student services (*Caring for yourself as you begin student life*). The broader *Studying at University* section was also re-launched with existing themes refreshed and new ones added, including *examination skills and memory techniques* which drew on the extensive experience of one of the institution's law lecturers. In the discussion we explore how UDL principles were applied in the design of the portal.



Discussion

Transition into HE involves a period of uncertainty for students and life can feel unstable (Goodman et al., 2006). There is a period of adjustment as students navigate their new education environment. Therefore, there was a need for the study skills portal to include a section that scaffolded and navigated students through this period. In the summer of 2023, the COP launched an additional section within the portal, titled *Starting at University* (<https://studyskills.wp.worc.ac.uk/index.php/starting-at-university/>). Alongside this, additional themes were added to the *Studying at University* section (<https://studyskills.wp.worc.ac.uk/index.php/studying-2/>). The following discussion explores some elements of the portal's creation, drawing on the principles graphically represented in CAST's (2024b) UDL Guidelines.

The *Starting at University* section needed to be both accessible and raise awareness of accessible technologies available to students. It also needed to welcome students into the HEI, fostering belonging and community and clarifying the HEI's culture and vocabulary. It needed to enable students to create and attend to goals and actions that would support their transition into the new learning environment of university. If the portal could open the door to this space, we felt that this would enable some stability within a time of uncertainty. To this end, the *Starting at University* section included themes on becoming IT ready, how to study at university, defining the role of the personal academic tutor, and self-care during this transition.

The inclusion of support to become IT ready was fundamental to accessing resources that would be needed to study successfully, both on and off campus. The access and use of ICTs by students encourages them to become more successful, active participants in teaching and learning, with greater motivation, interaction and creativity (Youssef et al., 2022). Our IT ready theme would focus on the very basics of getting connected. In collaboration with a COP member based in the HEI's IT department, the theme was designed to guide students into the sections of the IT website which would always be kept up to date with the latest information and resources, while also clarifying some of the terminology used around connectivity and managing online accounts. With this development it was hoped that we could engage with students from their first week within the university, both in university accommodation and off-site. This approach in content design reflects the thinking explored by Merry (2024) earlier in this paper, with the intention of removing initial barriers and empowering the student to be able to navigate and use technology to meet their learning needs effectively.

Within the HEI, the Personal Academic Tutor (PAT) system is seen as integral for instilling a sense of belonging within students, and to support their academic and personal journey through HE. A personal tutor can be defined as "a member of academic staff who provides academic guidance and pastoral support to a student during their course of study" (Advance HE, 2015). The lived reality for personal tutors in recent years

has been challenging, as they find themselves in the position of supporting not only their students' academic development, but also their mental wellbeing. The increased workload and blurring of the boundaries between academic and pastoral support can have a negative impact on not only the consistency of support provided, but also on the resilience and wellbeing of staff (Augustus et al., 2023). The study skills portal could alleviate some of the pressures of the role by providing a consistent and accessible student-facing resource, which PATs could 'prescribe' to students pre- or post-meeting. This would not only empower students to explore relevant issues identified in their individual academic journeys but also ensure that they receive correct and consistent information from the best teams within the institution to support them at different points in that journey. The *What is a PAT* section in the portal encourages students to reflect on what they believe the role to be, before sharing definitions, expectations and mutual responsibilities of both tutor and tutee, using interactive images and flipcards. This targets a range of UDL guidelines on means of engagement, including authenticity, fostering collaboration, clarifying expectations and promoting reflection.

Development of the *Studying at University* section of the portal drew on the expertise of COP members coming from a range of disciplines. The *Examination skills and memory techniques* theme was authored by the COP's law lecturer, who had originally written the guidance for her own students and was asked to adapt it for the portal. Some courses do not include exams, but this was clearly an area which would be relevant to students on other courses and so needed to be represented. Flipcards were used to define different types of exams and question types, and clickable headings were used to share the process and rules of examinations in the institution. Questions were posed to encourage students to reflect on their preparation for exams. While some of this content may not have seemed immediately relevant to some students, the memory techniques section revealed itself to be very enlightening, sharing a range of ideas to improve memory and recall, expressed through audio recordings, memory walks, flashcards, stories and colour. The theme suggested actions to help take care of yourself during and after exams, which itself is a thread throughout the portal, culminating in a theme dedicated to *holistic self-care and wellbeing*. This final theme was created by student support and wellbeing colleagues and centred around interactive scenarios of conversations between a student and a member of the student support team, demonstrating authenticity and empathy.

The study skills portal has since been evaluated through student-staff partnership. Students were able to voice their needs for further development for the portal through three of their peers who co-designed and facilitated the research in partnership with members of the COP. 91% of the 710 students who responded to the survey confirmed that the portal was supportive, with 87% indicating its ease of use and 93% suggesting they would recommend it to peers. Student comments were positive, indicating

improvements in productivity and organisation. Following student feedback, navigation between themes was improved. Elements of some themes were rewritten to demonstrate relevance across student levels, particularly postgraduate level. These developments also enacted the principle within the UDL framework of removing the barriers that could prevent access and engagement, by optimising relevance and representing a diversity of perspectives.

A course leader survey elicited 52 responses, and of those 83% indicated that they were directing students to the portal. Now the portal is regularly integrated into skills module teaching, and it has been noted that the resource is particularly valuable when used to underpin activities and discussions, particularly with international students. One postgraduate module leader has noted a 23% increase in marks in the first year of incorporating the resource. More recently, statistics show that *Starting at University* has enjoyed a 130% increase in use between August – November 2024, compared with the same period a year before, and *Studying at University* an 84% increase.

Today, the Study Skills portal is maintained and developed by the Study Skills Community of Practice. Neurodiverse in its composition, the COP includes the original three members who developed the original resource, alongside academic and professional services staff from across the HEI. The COP tries to maintain a broad membership to include as many academic Schools as possible and promote and share good practice in study skills development. In 2024, following student demand through the SAP project, a new theme on academic writing was added to the portal, and a research project theme is in development for 2025. To offer further means of engaging with the portal's content, the library team's online webinar series has been renamed *Study Skills Live*, so that students can interact directly and authentically with librarians and colleagues in other professional support services around topics to support research, referencing and organisational skills.

Conclusions and recommendations

The co-creation of the HEI's study skills portal, based on UDL principles, has enabled an embodiment of practice intended to empower students to access materials to support the development of study skills. The community of practice was central to the development of an accessible and relevant portal. The learning technologist's expertise in building the portal using accessible authoring software was critical to realising the community's vision of offering multiple means of engagement for students both entering HE and already studying with the institution. The collaboration of community members, drawn from various academic and professional services departments, offered a range of experiences and skills to draw upon, from teaching and technology through to research and project management.

Looking ahead, our priorities are to actively promote and embed the portal within the

institution, and to remain dynamic and responsive, ensuring that the portal remains relevant to students' diverse needs. On reflection, having two theoretical frameworks (UDL and COP) to underpin our work has provided a strong foundation for curriculum design. Collaboration has been a key component in the evolution of the portal, ensuring that tasks are completed in a timely manner. Having a diverse skill set within the COP has enabled the application of UDL principles throughout the project, while the involvement of students in evaluating the portal has given agency to them and provides direction for future developments.

To fully realise the benefits of the UDL framework in this project, it was important to promote and recruit to the COP from across the HEI. To do this, COP members have directly approached colleagues who share and demonstrate innovative practice within their department. We also work with students to gather feedback and ideas from across the student body, through student-staff partnership projects and student teams. Raising the profile and awareness of the COP's work through meetings, training events and conferences ignites new ideas to take the portal further. Recent ideas sparking excitement among the COP focus on creating more in-house content in a variety of formats, including more visual representations. More audiovisual, interactive and scribing or mapping of ideas will support the diverse representation of content and the decoding of complex topics.

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