Enabling accessible blended learning for equity (ENABLE): A framework developed for the University of Cape Town

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List of abbreviations and acronyms

Abbreviations and acronyms	Description
ADDIE	Analyse-Design-Develop-Implement-Evaluate learning design model
CAST	Center for Assistive and Special Technology
CCWG	Curriculum Change Working Group at UCT
CILT	Centre for Innovation in Learning and Teaching
со	Course objectives
CRP	Culturally Relevant Pedagogy
CRT	Culturally Responsive Teaching
CSP	Culturally Sustaining Pedagogy
DHET	Department of Higher Education and Training
ENABLE	Enabling accessible blended learning for equity
КОТР	Knowledge of the powerful
DLP	Digital Learning Platform
PK	Powerful knowledge
RBC	Redesigning Blended Courses project
TEDDIE	Think-Explore-Design-Develop-Implement-Evaluate learning design model
UCT	University of Cape Town
UDL	Universal Design for Learning
USA	United States of America

Introduction

The trigger problems that prompted the need for creating a framework for accessible, inclusive, and equitable blended learning at the University of Cape Town (UCT) included (1) the need for alternative modes of engagement during lockdown and/or university shutdowns; (2) the need to cater for a diverse student population who hail from different geographic locations, speak many different languages, follow different cultural traditions and/or face challenging personal circumstances and conditions; and (3) the need for educational equity in very unequal society in South Africa.

As a way to start addressing some of these seemingly intractable problems, the Centre for Innovation in Learning and Teaching (CILT) at UCT was awarded a grant from the national Department of Higher Education and Training (DHET) for a project entitled, Redesigning Blended Courses (RBC)¹. The overall aim of the RBC project is to contribute to UCT's Vision 2030 by providing case studies and guidelines to support teaching and learning that enables "a transformative and socially engaged undergraduate and postgraduate education" and "provide both contact and digitally mediated education"². In this project CILT is collaborating with the Including Disability in Education in Africa (IDEA) research unit in Disability Studies as well as Disability Services at UCT. For more detail on the background of the project see the <u>Redesigning Blended Learning Proposal</u>.

As a starting point we turned to the principles of the Universal Design for Learning (UDL) framework, developed by the Center for Assistive and Special Technology (CAST), as it provides a set of guidelines and checkpoints that need to be included to ensure that learning environments are inclusive of all learners, regardless of their abilities and individual differences. It is based on the premise that all learners can benefit from inclusive design of teaching, learning and assessment activities that are flexible, adaptable, and responsive to the needs of individual learners.

While the UDL principles have been and continue to be exceedingly instructive for higher education learning designers and some academics at UCT, the RBC project team identified the need for additional curriculum-related and student-focused questions to address the need for a **transformative**, equitable, and engaged curriculum as well as a more sequential and iterative learning design process to help prompt academics, curriculum developers, and learning designers when to best and how to invoke the UDL principles.

The need for curricula to be more equitable emanates from both UCT's Curriculum Change Working Group's (CCWG) Curriculum Change Framework (CCWG, 2018) and internationally from CAST's "UDL Rising to Equity initiative, a multiyear, community-driven effort to revise the UDL Guidelines to identify, name, and redress systemic barriers to equitable learning and outcomes" (Rose, 2021). The need for adopting UDL in a more sequential learning design process has also been identified in Canada (Benton Kearney, 2022).

UDL principles can be relevant at various stages of the curriculum design and development process and can also be applicable at various levels from the macro (e.g. ensuring that the course aims and the content are relevant to the needs of all students and society) to the

¹ <u>http://www.cilt.uct.ac.za/cilt/projects/udl</u>

² https://uct.ac.za/transformation/vision-2030

meso (e.g. ensuring that each lecture or online session demonstrates relevance through authentic, meaningful activities) and micro (e.g. ensuring that all images are accurately and succinctly described in alternative text³. Our challenge in creating a framework to scaffold this process was to draw upon UDL principles as well as curriculum and learning design models to craft a consecutive, but iterative, process that would prompt academics, curriculum developers and learning designers to consider more accessible, inclusive, and equitable curriculum design and development with a student-centred focus throughout the entire process.

Fortunately, there are many **curriculum design models** developed both internationally (Barnett, Parry & Coate, 2001; Veltman, van Keulen & Voogt, 2021) and locally (Luckett & Shay, 2020; Winberg & Winberg, 2017) as well as **learning design models** both internationally (Branch, 2009; Conole, 2015; Dabbagh & Bannan-Ritland, 2005; Mor & Mogilevsky, 2013; Laurillard, 2013) and locally (Gachago, Van Zyl & Waghid, 2021) that we could draw upon to develop this framework.

This descriptive (not proscriptive) framework has been designed with the UCT curriculum developers, learning designers, educational technologists, and resource development specialists (e.g. script writer, videographer, graphic artist, editor) as our primary audiences. A simplified version of the framework will be released for lecturers and tutors as a "How-to guide" with links to details in this framework and/or in separate documents. In addition, the key elements can be extrapolated to suit most higher education settings that seek to provide accessible and equitable education to a diverse range of students. However, it must be noted that the framework acts as a prompt (not a recipe) to lecturers and others involved in the conceptualisation, design, development, implementation and evaluation of blended learning courses. Each discipline has different requirements and lecturers have unique ways of supporting their students in their studies.

Contributing elements to the framework

The intentional design to enable accessible blended learning for equity is underpinned by UDL principles and is structured according to a model of curriculum and learning design that follows the broad processes of thinking, exploring, designing, developing, implementing, and evaluating as well as reflecting upon all these steps during the progression of course design and development process.

To contextualise the use of the notion of **equity**, we explicitly draw on the theory of social justice (Fraser, 2005) and practice of social justice in South Africa (Bozalek & Zembylas, 2019; Luckett & Shay, 2020). Fraser understands social justice as 'parity of participation':

"According to this radical-democratic interpretation of the principle of *equal moral worth*, justice requires social arrangements that *permit all to participate as peers* in social life. Overcoming injustice means dismantling institutionalised obstacles that

³ Alternative text (also known as ALT text or Alt tags) is a textual description of images, diagrams, charts, photos, etc. that are provided in the HTML code of a web page or in the ALT text in word processing and presentation software. It is employed to accurately and succinctly describe the content of the images for those who are unable to see it, such as those who use screen readers, or for situations when the image cannot be loaded due to technical issues.

prevent some people from *participating on a par with others*, as *full partners in social interaction*" (Fraser 2009a, p. 16, italics added).

In relation to parity of participation and equity in education Keddie suggests that: "Creating social arrangements that foster such parity ... centres upon knowing 'who' students are and 'acting' on this information to improve their capacity to 'take advantage of the opportunities of education', it is about recognising how students are differently positioned in terms of their equity needs and on providing differential support to address these needs." (2012, p.264)

For the purposes of this framework, equity is therefore understood as the state where students and lecturers participate as equals and as full partners in engaging in the learning and teaching process and where lecturers proactively solicit information about their students in order to provide deliberate, flexible and responsive support so that students can take advantage of the educational opportunities afforded them despite their different situations.

In order for education to be equitable, one key aspect is to ensure that the educational opportunities are accessible to all. To operationalise the concept of **accessibility** we employ the theory underpinning UDL (Rose & Meyer, 2002; Meyer, Rose & Gordon, 2014) and the practice of UDL in higher education (Cai & Robinson 2021; Fovet, 2021) to ensure that no matter the students' differences economically (e.g. class, geographic location), socio-culturally (e.g. knowledge, skills, experience, language, age, gender, race, ethnicity), psychologically (e.g. learning difficulties, mental health conditions) and physically (e.g. sensory impairments, mobility impairments or temporary injuries) they are provided easy access to all the necessary learning, teaching and assessment activities and materials.

To scaffold the decision-making process involved in creating **blended learning** we draw upon the theory (Dabbagh & Bannan-Ritland, 2005; Mor & Mogilevsky, 2013) and practice of learning design in the context of blended learning (Alammary, Sheard & Carbone, 2014; Hrastinski, 2019) in higher education.

The study that most closely relates to our use of social justice as a conceptual bridge between UDL and learning design, is the article by Waitoller and King Thorius (2016) which adopts Fraser's understanding of social justice in relation to UDL and culturally sustaining pedagogy (CSP). According to Django Paris (2012), originator of the term, CSP "seeks to perpetuate and foster-to sustain-linguistic, literate, and cultural pluralism as part of the democratic project [...] that embrace[s] cultural pluralism and cultural equality" (p.93). His work is an extension of Gloria Ladson-Billings (1995) whose paper, "Toward a Theory of Culturally Relevant Pedagogy" formed the foundation for this work variously referred to as CSP, Culturally Relevant Pedagogy (CRP), Culturally Responsive Teaching (CRT) (Gay, 2000) and socially just pedagogies (Zembylas & Bozalek, 2017). Gay's (2002) five essential elements of culturally responsive teaching neatly sum up the ways in which lecturers and learning designers can proactively enable accessible, inclusive and equitable learning in higher education, namely by "developing a knowledge base about cultural diversity, including ethnic and cultural diversity content in the curriculum, demonstrating caring and building learning communities, communicating with ethnically diverse students, and responding to ethnic diversity in the delivery of instruction" (2002, p. 106).

Characterised as the concept of fairness, social justice is an ideology synonymous with the vision of an empowering educational experience for students and staff. Social justice serves as a vehicle towards addressing the inequalities and inequities that permeate societies in general and education in particular. In an era where inclusive education is gaining greater traction as an educational model to follow (UNESCO Sustainable Development Goal 4; Walton & Rusznyak, 2019), social justice needs to be well understood for its actualisation. Drawing on Fraser (2005), social justice can be explored along the dimensions of cultural recognition, economic redistribution, and political representation. This means creating greater and genuine recognition and representation of the interests and ideas of various social groups as well as an equal and equitable distribution of resources. Specific to higher education, this entails working toward:

"(a) the redistribution of quality opportunities to learn and participate in educational programs, (b) the recognition and value of differences as reflected in content, pedagogy, and assessment tools, and (c) the opportunities for marginalized groups to represent themselves in decision-making processes that advance and define claims of exclusion and the respective solutions that affect their children's educational futures." (Waitoller & Kozleski, 2013, p. 3).

With respect to the ENABLE framework this means taking proactive steps towards:

- Recognising the value of multiple perspectives on the same topic by providing a range of existing resources written or produced by people holding different views on an issue so that students understand and can engage in the debates.
- Making learning materials as affordable as possible, for example, using open educational resources, open textbooks, open access journal articles and book chapters, collaborative software (e.g. Google Docs)
- Supporting different ways that students might prefer to learn to:
 - Remember (e.g. active listening, spaced repetition, active recall, mnemonic devices, visualisation, chunking information)
 - Apply what they have learned (e.g. relate to a case study, scenario or real-life context; receiving feedback; reflection on their application and the feedback)
 - Analyse (e.g. assumptions and criteria for analysis; sub-categorisation; comparing and contrasting various resources including artificial intelligence (AI); visualisation - on their own or with others)
 - Evaluate (e.g. source checking in languages they can read; examining reasoning; making judgements on their own or with others)
 - Create (e.g. brainstorm to generate ideas from multiple perspectives; considering the diverse audiences they hope to impress; using as many senses as possible to observe and respond; engage collaboratively with others recognising their diverse cultures, languages, viewpoints)
 - Engage with others both in the classroom and beyond to obtain a more realistic understanding of the issue at hand.
 - Contributing knowledge and skills to a wide audience (e.g. engaging on social media, writing a blog, contributing to a Wikipedia page)
 - Initiating events and/or advocating for a social justice cause.
- Offering a range of pedagogical approaches

- Enquiry or inquiry-based learning (Pedaste, et al., 2015)
- Translanguaging (Cenoz & Gorter, 2022)
- Building Communities of Trust (Mackey, 2020)
- Flipped learning (Danker, 2015)
- Offering a range of assessment strategies
 - Learner self-assessments
 - Ipsative assessment
 - Formative assessment
 - Summative assessment
 - Using a ranges of assessment tools:
 - Holistic and analytic rubrics
 - Memos

Providing feedback in a variety of ways

- Rubrics and comments
- In-text commenting text and/or audio
- Audio comments for holistic feedback to entire class
- Offering ways of soliciting students views on the course
 - Formative evaluation during the course changes made for current cohort
 - Summative evaluation after the course changes made for next cohort
 - Feeding data analytics, assessment results summative feedback for next cohort

Universal Design for Learning (UDL)

Background to UDL

As the right to education for children with disabilities was established through various global statements (UNESCO, 1994, 2015; United Nations, 2006), there was increasing recognition that physical access to classrooms was an important first step toward accessibility. However, this did not always lead to participation and success within the educational process as children's different learning needs were not accounted for in the classroom that was set up to teach to the middle or the average learner (Rose, 2021). The CAST noted that there was no such thing as the average learner for whom the standard classroom was being designed. Rather, children all had different learning capabilities and learning challenges, but they could learn successfully when appropriate adjustments were made to the learning environment, materials, and instruction.

Classrooms could be more inclusive if teachers adjust to 'teach to the margins' rather than to the middle (Rose, 2016). These patterns of adjustment and variation could be defined, planned for, and followed in order to develop learning environments in which all the students could benefit from the instruction and all could demonstrate what has been learned in differing ways. With this came the realisation that UDL would not only benefit students with disabilities but could benefit all students, as each individual has different learning needs and preferences.

UDL in higher education

Employing the UDL framework in higher education means that students do not need to adapt themselves to the curriculum activities and materials because they are proactively designed

to provide multiple options and pathways that can be followed to best suit their individual differences. Lecturers need to understand that variability of students in the class is a given and plan accordingly. This flexibility of design encompasses all aspects of the curriculum, including teaching methods, classroom environment, activities, resources, assessment and evaluation. Applying UDL principles deliberately can enable students to become more self-directed and expert learners through lesson planning that recognizes and provides for their diverse learning needs (Gronseth, Michela & Ugwu 2021). What distinguishes UDL from frameworks that support differentiation and adaptation, is that the planning for learning diversity occurs at the outset, or beginning of, course design. In this way, existing and potential barriers in the curriculum are identified and mitigated, while high achievement expectations for all students are maintained (Edyburn, 2010).

Adopting this approach supports equity as the learning environment is geared toward diverse learning needs, rather than the 'average'. It is an asset-based approach (Waitoller & Thorius, 2016) as it allows students to make use of their skills, rather than specifying how they will learn and 'remediating' them when they are not able to learn in this way. It is accessible since it provides multiple ways in which students can learn and it is inclusive by catering for diversity and encouraging equity. Within UDL flexible planning takes place through following the three core guiding principles of UDL: (1) providing multiple means of engagement; (2) providing multiple means of representation; (3) providing multiple means of action and expression. By implementing the UDL principles and their associated guidelines, lecturers can allow students to deepen their engagement and interest in the world around them through different learning activities that are accessible to students with different abilities, experiences, and interests; present information that enables diverse students to gain knowledge and skills in different ways; and differentiate the ways students are able to express what they know and can do.



Figure 1: UDL principles (CAST)

These principles are supported by <u>guidelines</u> for the implementation of the core principles of UDL. The guidelines have been developed by CAST as practical suggestions to the curriculum development and teaching team. Nine areas (as illustrated in Figure 1) are organised in three layers to support students on the journey toward becoming an expert learner. These are:

- Access: actions described here provide students with initial access to the skills associated with the specific principle
- **Build:** these actions enable students to the ability to build on the newly acquired skills and to stabilise these newly acquired skills
- Internalize: describes actions that enable students to take increasing control of their own learning and to determine their own learning goals and pathways

Expert learners

The ultimate goal of the UDL approach is to develop expert learners, which may be better expressed as building learning expertise, since it is a process rather than an endpoint. In this way students become more **strategic and goal-directed learners**, such that they are able to formulate plans for learning, and devise effective strategies and tactics to optimise their own learning. This involves organising resources and tools, monitoring progress and identifying strategies that build upon their own strengths and weaknesses. They learn to become more

resourceful, knowledgeable learners utilising their prior knowledge and experience to support new learning in a systematic way, enabling them to assimilate and integrate new information. They develop skills in organising and structuring new information and become skilled in translating this new information into meaningful and useful knowledge. Learning expertise also entails becoming a more **purposeful and motivated learner**, able to set meaningful goals and to sustain the effort in getting there, regulating their emotional and distracting influences (National Center on UDL, 2010).

Disability inclusion

As noted above, UDL started out as a response to disability inclusion and has now expanded to address the full range of learning needs. However, it must be noted with caution that the application of UDL is necessary but not sufficient to address access and participation issues encountered by students with disabilities. Academics and learning design and development staff need to bear in mind specific access issues that need reasonable accommodation provisions to provide equitable access to studetns with disabilities. For example, students who are D/deaf might require a South African Sign Language interpreter and a student who has fine motor coordination issues might need access to speech-to-text technology. These accommodations are highly individualised and need to be developed in consultation with the student and with the support of UCT's Disability Services. However, it has to be stressed that academic conveners need to take responsibility for ensuring that the recommended accommodations are integrated into learning and teaching so that the student is not continually having to remind the lecturers about their needs.

In particular, the idea that all students need to do the same assessment is a stumbling block for inclusive practice. It is a common misconception that for assessment to be 'fair', everyone should have the same task. However, the basis of UDL is that students can reach the same goals through different learning pathways and this includes different forms of assessment. What is critical here is that the Course Outline is crystal clear on what is being examined and that the assessment activity is indeed assessing the required knowledge and/or skill. The form of the assessment can be varied, for example, oral or written or both.

The next section explains a curriculum and learning design model that will be used to map when and how UDL principles need to be employed throughout a sequential and iterative design process that aims to continually improve blended and online learning materials and engagement.

TEDDIE

The <u>Think-Explore-Design-Develop-Implement-Evaluate (TEDDIE) model</u> was initially developed for the UCT Postgraduate Diploma in Educational Technology for the module Online Learning Design (EDN4501W) in 2016 convened and taught by Cheryl Hodgkinson-Williams and Shanali Govender from CILT. It is used here as a guide to prompt the crafting of accessible, inclusive, and equitable curriculum design and development in a sequential, but iterative, process (Table 1).

Table 1: TEDDIE model

Think	In this framework we define "Think" as comprising a continuous process throughout a curriculum and learning design process. "Think" can be seen as the golden thread that continuously prompts thinking about the conceptualisation of a new course or reflecting on a current course. We want to keep thinking about how we approach and manage our curriculum and course design, development, implementation, and evaluation to encourage students to become expert learners as part of the overall curriculum intent.
Explore	"Explore" focuses attention on what is to be learned and why, by whom, from whom, and in what context.
Design	"Design" focuses on what teaching and learning activities, existing resources, custom-made materials, tools, and assessments will be used in the course to achieve the course and learning outcomes. The design commences with the course outcomes which are "chunked" into smaller attainable learning outcomes. Thereafter, attention is paid to how best the students might achieve these learning outcomes, which guides the selection and sequencing of teaching (pedagogic) strategies, resources, tools, and assessments.
Develop	"Develop" comprises how to create / develop / produce teaching resources, learning materials, assessment briefs, and rubrics using the most suitable combination of digital learning and video conferencing platforms and other technological tools to achieve the smaller attainable outcomes.
Implement	"Implement" concerns the process of organising and enacting the course activities through clear communication, genuine engagement with and collaboration among students, as well as monitoring, assessment and feedback to individuals and groups.
Evaluate	"Evaluate" is defined as the process of judging courses, programmes, processes or presenters to establish its effectiveness on students' learning as well as the students' perception of the learning experience and reflecting upon what lecturers should continue, develop or cease for the next iteration of the course.

Blended learning

The term 'blended learning' is used very widely and loosely in education, and has joined the jargon short-hand used to describe the modalities of contemporary learning experiences in higher education. However, there is little consensus to what is precisely meant by this term (Hrastinski 2019). At its simplest interpretation, blended learning means the mixing of two or more different elements of the education process, be these instructional methods, pedagogical approaches or different technologies (Hrastinski, 2019). While the words themselves – 'blended' and 'learning' – make no specific reference to technology, the

commonest associations have focused on how educators **combine in-person with digital modes of learning** (McKenzie & Karisa, 2021).

For our context at UCT, the most suitable definition is provided by Garrison and Kanuka (2004) which focuses on improving the **quality** of the education for students, through **'the thoughtful integration of in-person learning with online learning experiences'**.

Blended learning thus refers specifically to how educators have chosen to mix or combine different modes of teaching and learning.

	Ì DIN	MENSIONS OF BLENDED LEARNING
2	Geographic Proximity	On campus Hyflex Block release Remote
ଚ <mark>}†</mark> ଞ ଜୁ ଭୁ	Digital Mediation	Digital platform / Tech in classroom / Hybrid / Fully online
	Temporal Immediacy	Synchronous Live with recording Asynchronous

Figure 2: Dimensions of blended learning (CILT, 2022)

As suggested in Figure 2, there are multiple dimensions to consider when designing a 'blended' learning experience, including geographical proximity, digital mediation, and temporal immediacy. The most obvious one being geographic proximity - are the students and lecturers together in the same physical location, which has been the traditional on-campus lecture theatre/ lab space of university education. Living in different physical locations - often referred to as 'distance' or 'remote' is at the other end of the geographical proximity spectrum. There are increasing variants on the on campus vs distance learning dichotomy. Some models of learning bring the learning community together in a shared physical space occasionally, for example, the 'block release' model lets students gather on campus for a set period at agreed intervals and offer more contact and peer interaction for students living far away from the university's main campuses. More recent variants include 'hyflex' which enables one single learning event to have in-person students alongside remote students (participating through livestream video conferencing). Growing in popularity, this

mode is challenging for the lecturer to ensure there is parity of opportunities for student participation.

Digital mediation similarly spreads across a wide range of practices, from the very simplest such as having:

- a digital learning platform site (e.g. Amathuba) to supplement face-to-face teaching with limited tool use (e.g. Course outline, Announcements)
- digital technology in the classroom (e.g. interactive whiteboards, clickers, online polls, mobile apps) to enhance student engagement in face-to-face teaching
- a digital learning platform site (e.g. Amathuba), video conferencing platforms (e.g. MSTeams) and other technologies (e.g. *Padlet, Jamboard, <u>Edraw Mind</u>*) to support both face-to-face teaching as a hybrid course. In this blended mode the integration of in-person and online learning is carefully considered within the educational ecosystem when lecturers create a 'hybrid' learning experience by deliberately prescribing various in person teaching sessions and online learning tasks.
- a digital learning platform site (e.g. Amathuba), video conferencing platforms and other technologies to deliver a fully online course. In a fully online programme, all learning and teaching is mediated and enabled through the main digital learning platform, as well as various specialist applications such as video conferencing software, remote proctoring services, and other educational technologies.

Temporal immediacy is another dimension lecturers and students can adjust in creating the learning environment. Traditional university education is based on a group of people gathering at the same time to learn together, for example, the live lecture. But asynchronous learning is also a core part of the experience - where students would work on their own preparing, reviewing, researching, reading, and learning at their own pace, in their own time (asynchronous). Recorded lectures have become ubiquitous in recent years which has separated the delivery of the lecture from the consumption of the lecture (now asynchronous). These two modes (synchronous and asynchronous) are no longer so distinct since many live lectures are recorded so that others may 'attend' them at another time, allowing students to choose the mode that best suits them at any one time.

When designing inclusive blended learning, making course design choices across these multiple dimensions will affect students' ability to interact, participate, and succeed. The choices are based on the type of learning (e.g. remembering, understanding, applying), the scale, the anticipated outcomes, and knowledge of students' contexts. Offering options across the dimensions will allow students the agency to adjust and select based on their circumstances.

Blending different modes offers the opportunity to select the particular affordances of the online as well as the in-person modes of learning engagement to facilitate students achieving their learning objectives. Knowing the students' context as well as the lecturer's pedagogical approach and the content and skills of the domain area would have to be taken into account (Bates, 2022).

Educators may see digital or internet enabled learning being particularly effective in that it:

- allows students greater flexibility about when they can learn which cultivates self-directed learning (but this process would need to be scaffolded for younger students) (Bates, 2022)
- frees learning from the bounds of space and time by allowing simultaneous independent and collaborative learning experiences (Garrison & Kanuka, 2004);
- offers easier integration of textual, visual and oral formats to provide multiple means of expression;
- enables the building of dynamic, distributed communities, and can expand the physical and temporal limits of the traditional classroom including people not living in the same place or not available at the same time.

Educators may see in-person learning as providing:

- for more embodied or humanising physical spaces for social connections and building the learning community, especially at the beginning of the course – establishing relationships between students (peer-to-peer) and with lecturers (student-to-teacher);
- essential opportunities for practising practical and applied skills in labs, studios, field settings, prac rooms, clinics, etc. (Bates, 2022);
- opportunities for working together in groups through collaborative problem-solving or brainstorming can feel more responsive and interactive than in online forms. The whole body communication and dynamic co-creation of artefacts, diagrams, visualisations (e.g. white boards) can be more effective in real-time in-person interactions.

Veteran online education specialist, Tony Bates (2022) has developed a set of questions to help lecturers and designers think through making choices about mode. These include considerations about the students' context, the overall pedagogical approach of the lecturer, the content/ domain knowledge, the skills to be learnt and the resources available to the lecturer to do the preparation (See <u>Bates, 2022, Teaching in a Digital Age, Chapter 11.4</u>).

Framework for enabling accessible blended learning for equity

The framework for enabling accessible blended learning for equity (ENABLE) uses the TEDDIE learning design process to prompt when to consider the various UDL pedagogical principles to assist interested academics, tutors, curriculum developers, learning designers, educational technologists, resource development specialists (e.g. script writer, videographer, graphic artist, editor) to proactively embed UDL into curriculum content, the teaching activities, the individual and group learning processes, the educational materials, the assessment tasks and course evaluation. Depending on the scale of the learning intervention (an individual face-to-face session, a small group blended course, a large-scale fully online course), the roles of those involved in the conceptualisation, design, development, implementation and evaluation will be differentiated and expanded.

Table 2: Roles of those involved in conceptualising, designing, developing,implementing and evaluating blended learning

Stage	Class lecture / session	Blended / Fully online course
THINK	Lecturer/s	Lecturer/s, curriculum developer, industry or professional partners
EXPLORE	Lecturer/s, tutor/s & possibly students	Lecturer/s, curriculum developer, tutor/s, students
DESIGN	Lecturer/s, tutor/s & possibly students	Lecturer/s, project manager, learning designer
DEVELOP	Lecturer/s, tutor/s & possibly students or CILT student Educational Technology advisors	Lecturer, learning designer, educational technologist, script writer, videographer, graphic artist, editor and possibly a project manager depending on the scale of the course
IMPLEMENT	Lecturer/s, tutor/s & students	Lecturer/s, guest lecturers, tutors, students
EVALUATE	Lecturer/s, tutor/s & students	Project manager, lecturer/s learning designer specialising in evaluation

Think

The "Think" stage comprises a continuous process throughout a curriculum and learning design process (the golden thread) that prompts thinking about conceptualising a new course or reflecting on a current course and re-thinking about how we approach and manage our curriculum and course design, development, implementation and evaluation to encourage students to become expert learners as part of the overall curriculum intent. It commences with the conceptualisation and articulation of the overall curriculum intent or what could be referred to colloquially as the "Big Idea".

Overall curriculum intent

For the curriculum to be accessible and equitable, we need to be clear that our curriculum intent includes supporting and encouraging students to become expert learners and that the curriculum content is inclusive of a wide range of views on the field, discipline, topic.

Table 3: Think about the curriculum intent and relationships

Make the intent clear and enable students to take control over their own learning	The text in the applicable Faculty Handbook is the first place to make the intent of the course clear. This text usually appears under a heading "Purpose" or "Aim" or "Goal" and should also include the aim to develop students' learning expertise. This means that the intent would include ways in which the course can optimise students' choice and autonomy so that students can be guided how
	to set appropriate goals and take control over their own learning.

	The second place where the curriculum intent is explained is in the <u>Course Outline</u> . Here the lecturer can explain the opportunities students will be given to develop their executive functions in order to foster their capacity to learn. UDL Guideline 6: <u>Provide options to develop executive functions</u> UDL Checkpoint 6.1: <u>Guide appropriate goal-setting</u> - Post goals and objectives in an obvious place. UDL Checkpoint 7.1. <u>Optimize individual choice and autonomy</u> UDL Checkpoint 8.1: <u>Heighten salience of goals and objectives</u>
Referring to a wide range of views on the same topic	In order to be equitable ensure that the curriculum content is inclusive of a wide range of views on the field, discipline, topic so that students are aware of key unresolved issues and topical debates and can gradually enter the debates themselves.
Making conceptual relationships clear – graphic organiser	Depending on the overall intent, you may be able to provide some kind of graphic / advanced organiser to offer to your students as a way to make visible the shape of the course and how it is to be approached. A course <u>graphic / advanced organiser</u> would be most useful in the <u>Course Outline</u> and/or in the course of an Orientation session or the 1st face-to-face lecture / online session. Indicate key outcomes and alternative ways of providing evidence of meeting these outcomes. UDL Checkpoint 2.5: <u>Present key concepts in one form of symbolic</u> representation with an alternative form (e.g., an illustration, <u>dance/movement</u> , diagram, table, model, video, comic strip,

But we also need to think about where and how we are going to manage the course design and development process and where we are going to store the various existing resources and custom-made materials so that they are easily hyperlinked in our courses.

Overall management of the course and its curation

Key question: Where will you store the course resources to make them accessible to students and other colleagues and to keep them up-to-date?

One of the more practical aspects of the "Think" process is to literally 'project manage' the blended learning design process from the conceptualisation of the "Big idea" through the exploration, design, development, implementation and evaluation phases. One key activity is to decide where all the course planning resources (i.e. convener / lecturer-facing), the course materials (i.e. the student-facing), the examination documentation (i.e. lecturer / examiner-facing) are to be curated (i.e. kept in an ordered, well-indexed manner with descriptive file names for easy navigation and version control) and kept up-to-date.

Curation of resources is an essential activity in blended learning, most particularly for students, but also for multi-team convenors, lecturers, tutors, learning designers and

examiners needing to assess digital artefacts (e.g. programming, e-portfolios). In this way UDL principles of <u>posting goals</u>, <u>objectives</u>, <u>and schedules in an obvious place</u> (Checkpoint 6.1) and <u>guiding information processing and visualization</u> (Checkpoint 3.3) can be addressed.

Convenor / lecturer-facing materials	 If you have more than one convenor, lecturer, tutor, learning designer, external consultant contributing to a course, consider creating a permission-restricted collaborative folder (e.g. Google, MSTeams) for the development of an overall Curriculum Plan from which student-facing resources such as the <u>Course Outline</u>, the Course Schedule (i.e. dates, times, venue, topic, resources, assessment hand-in dates) can be extracted. The final versions of these documents should be uploaded into the UCT's digital learning platform (Amathuba).
Student-facing resources	 To encourage student engagement (ask questions or make comments) with key course resources, (e.g. the Course Outline), consider using a file-sharing and collaboration platform (e.g. Google Docs or MSTeams) as permissions can be set for students to "Comment" (but not edit). In addition to the sharing options, a choice to be identified or anonymised is also available. For changeable resources (e.g. Course Schedule, Frequently Asked Questions, Glossary) collaborative resources (e.g. group activities, group presentations, group assignments) consider creating appropriately permission-granting collaborative (e.g. Google or MSTeams) documents, presentations etc. Static resources (e.g. lecturer or guest lecturer presentations, lecturer podcasts, lecturer videos or lecture recordings in the venue, readings) are probably best integrated into the course site on the digital learning platform (e.g. Amathuba).
Examiner-facing resources	 Consider inviting external examiners to the course site so that they can have a better understanding of the courses they ultimately need to examine. If examination artefacts are digital in nature, then these can be examined from within the digital learning platform.

Explore

For this framework we define "Explore" as the phase that focuses attention on what is to be learned and, why, by whom, from whom and in what context. Understanding the students, the context in which they live and learn, the lecturers' strengths and capabilities inform the content and or experiences to be shared in a course.

Student profile

Key question: Who are our students?

In order to optimise student engagement (UDL principle of <u>Engagement</u>) is to get to know our students / participants / audience. This will assist us to provide the best match between what they want to know and/or want to contribute, what skills they possess, can share or want to learn and how they prefer to engage with learning materials, lecturers, tutors and peers. We also need to know what challenges that students are prepared to disclose (e.g. economic, social [e.g. linguistic, numeric, digital, academic literacies]; physical, sensory, cognitive, mental health, developmental, chronic illness, communication) so that we can best accommodate them by proactive learning design.

Gathering information for a student profile can be undertaken through online or in-person meetings, online or paper-based surveys, online or paper-based empathy mapping, identifying personas from anticipated or previous cohorts of students, self-assessments, class discussions and/or asking students to create an audio or video snippet introducing themselves.

Methods	Details
Meeting Online In-person	If you are able to meet with at least some students BEFORE the beginning of the academic year, this will assist you in getting to know their needs and constraints so that you can adjust your curriculum to better suit their needs and expectations. This could be achieved through a video-conference online (<i>MSTeams</i>) or in-person.
Survey • Online • Paper-based	For large classes prepare an online survey (e.g. <i>Google</i> <i>Forms</i>) of your students / colleagues BEFORE the start of the programme or course (i.e. the actual cohort of students whom you will be teaching) or a paper-based survey at the first face-to-face meeting to get some idea of their motivation, expectations, prior knowledge, experience and/or skills, confidence, their learning context and constraints. You could also ask for ways in which they feel they can contribute to the programme or session. Make sure you have a plan to respond and feedback the results of the survey. For small classes these questions could be posed on virtual bulletin boards (e.g. <i>Padlet</i>) or a digital interactive whiteboard (e.g. <i>Jamboard</i>). If you have sight-impaired students in your class, either offer to have a buddy assist them or change the input of responses to a GoogleDoc with the permissions set to "Anyone with the link" as the responses will then be anonymised.

 Table 5: Student profile

Empathy mapping Online Paper-based 	For small classes prepare an <u>online empathy map</u> - a more graphical way to solicit students' needs (e.g. <u>Jamboard</u> , <u>Padlet</u> , <u>Google Slides</u>) for your students to complete BEFORE the start of the programme or course (i.e. the actual cohort of students whom you will be teaching) or use a paper-based version at the first before a session to get some idea of your students' perspectives on what they say, think, feel and do in relation to their learning journey on the programme, course or session as well as their needs and wants.
Personas • Anticipated	If you have a new course you would need to anticipate the possible types of students that you might have in your class. For an existing course you can base your planning on student evaluations or focus groups of previous cohorts of your course, by building a set of personas that most accurately describe the main groups that you need to take into account in your course development. You can use a <u>Persona Card</u> (shared by Yishay Mor)
	An example from a plan for a new course (CILT)
Self-assessment Paper-based Online 	Asking students to self-assess their own knowledge, skills and attitudes in relation to the course can help students at the BEGINNING of a course to identify areas where they may need more support and to take ownership of their learning. You can use a paper-based questionnaire that students can keep for themselves or an online questionnaire (e.g. <i>Google</i> <i>Forms</i>) that they can submit to the lecturer only.
Class discussion • Paper-based • Online	At the BEGINNING of a course initiate small group discussions to allow students to share their prior knowledge, skills, and attitudes related to the course topic. This can help lecturers and students to identify common misconceptions and areas where students may need more support. This can be captured on paper, on <i>Jamboard</i> or <i>Google slides</i> with separate slides for each small group. These ideas can be combined during a class discussion.
Individual audio or video ● Online	At the BEGINNING of a course ask students to create an audio or video snippet (e.g. <i>Flipgrid</i> , class <i>WhatsApp</i> group) to introduce themselves to the class by providing their preferred name and some aspect relating to their demographics (e.g. country, town) or an aspect related to the course. By having them provide the name that they prefer to be called, the whole class will hear how the students pronounce their names.

A more comprehensive set of ideas on creating a student profile can be found under <u>Student</u> <u>Profile</u>.

Lecturer and tutor profiles

Key question: Who are the lecturers and the tutors?

We need to know who the lecturers and tutors are and what knowledge, skills and experience they possess and how best to match the intended curriculum with what students need. We also need to know about their dispositions towards diversity, equity and inclusion and be able to provide support where necessary.

With respect to inclusive design for blended learning, lecturers and tutors might consider reflecting upon their:

- Knowledge of disability inclusion, UDL, the <u>University of Cape Town Disability Policy</u> and the procedures followed by the Disability Services
- Knowledge of the <u>services available to students with disabilities or difficulties at UCT</u> (e.g. lecture and study materials in an accessible format, scribing or note taking services, South African Sign-Language interpreters, access to secluded writing space, flexible assignment deadlines, adjustments to lecture and tutorial attendance requirements, the use of lecture recordings, permission to sit for deferred class tests and examinations
- Knowledge about, skills in and positive attitudes towards creating and implementing blended learning

Prerequisites

Key question: Are there any prerequisites (prior experience, prior qualifications, pre-course tasks etc.) that students need to have or undertake to be accepted onto the course?

Although the handbook should make the prerequisites clear, ensure that you communicate this again. Consider carefully what you specify as required formal qualifications as this can act as a hard barrier to entry. <u>Recognition of Prior Learning (RPL)</u> is a potentially alternative way of screening potential candidates, but needs to be carried out in accordance with university rules to avoid any later problems with the basis of admission. Making education as accessible as possible is in keeping with the overall ambition of the UDL initiative.

If there are key knowledge constructs or skills that you will be building upon, you could ask students to undertake a self-check and provide materials for recapping or catching up. This may be important if you are drawing students with different preparation or experiences (for example, different educational institutions, disciplinary studies or age) - see <u>Checkpoint</u> <u>3.1.Activate or supply background knowledge</u>.

Overall course objectives

Key question: What are the overall objectives (knowledge, skills and dispositions) that will enable your students to meet the overall goal of the course and their goals for the course?

Overall course objectives (CO) address the question, "What is it that your students need to learn and/or are intended to achieve by the end of the course?" It can thus be defined as a brief integrated statement describing what the student will be able to know, do, and reveal by the end of the course, to what degree, and under what conditions. The course objectives are usually quite broad and comprehensive and describe what knowledge, skills and dispositions the students are expected to achieve overall. Course objectives cannot be attained in one online session or lecture, but provide clear guidance about what is included and not included in a course and in the Design phase provide the structure for the more specific learning outcomes that are attainable at the end of specific learning activities or assessment tasks.

Course objectives should also include the students' progress toward developing their own learning expertise. (Later on we will discuss how the students are best able to learn and achieve the specific learning outcomes). These course objectives are usually listed in the Course Outline.

Examples of course objectives:

By the end of this course it is expected that students will be able to:

- Apply knowledge of mathematics, science, and engineering in solving complex engineering problems
- Identify, formulate, search for information, and analyse complex engineering problems to reach informed conclusions using basic principles of mathematics, natural science, and engineering science
- Be self-directed and expert learners by formulating plans for learning, and devising effective strategies and tactics to optimise their own learning.

Following UDL principles we need to bear in mind that given students' individual differences not all students will learn how to achieve a particular course objective in exactly the same way or present evidence for their achievement in the same way. It is therefore really important to identify what the students need / want to achieve (i.e. know, do or reveal) and to enable them to have choices in the learning pathways that they follow to achieve these goals.

The course objectives can also provide clues to what existing resources the lecturer/s, tutors and students could consult as:

- seminal work in the field (e.g. conceptual and theoretical fundamentals). Bear in mind that there may be competing or alternative conceptual and theoretical perspectives of which students need to be aware.
- key applications in the field (e.g. research). Bear in mind that the type of resources that students could use can be more or less accessible epistemologically and linguistically. In other words, articles in scholarly journals are not always directed at students as they are often scholar-to-scholar exchanges or even disputes, and require a great deal of background knowledge (i.e. epistemological access⁴) to understand.

⁴ Epistemological access can be understood as "dominant ways of knowledge making" (Bozalek & Boughey, 2012, p.)

These course objectives, usually crafted by the lecturer/s with the support of a curriculum developer serve as the transition between the Explore stage and the Design stage.

Design

This is the stage where the approved curriculum is extrapolated into the blueprint for the actual course. The design phase is still 'on paper' – no work is done in the online course shell yet. This is intended to retain decision-making flexibility about the overall learning experience, specific learning and teaching activities, balance of engagement, creation of original teaching and learning material, selections of existing resources (readings and media), assessment briefs and rubric design, and any proposed technology requirements. A course design 'storyboard' also helps gauge whether the course is accessible and equitable whether there are any specific accessibility issues so that they can be addressed while decisions are still being made. Draft learning content can be created in any variety of systems (MS Word, Google Drive, etc.) that works well for the partners to share access, annotate, and edit effectively (Inspired by Granite State College's ID Team, 2019, p.18).

As an example see the document produced for the RBC project - <u>Background to cases in</u> <u>practice: Principles of inclusive course design</u>

Specific learning outcomes

Key question: What are the specific learning outcomes (knowledge, skills and dispositions) that will enable your students to meet the overall course objectives and their goals for the course?

As stated earlier, the overall course objectives represent a set of destinations within a course. Metaphorically, enroute to these destinations (overall curriculum intent), one usually has other destinations with smaller pit stops along the way (module or session learning outcomes). All of these are interrelated and one cannot stand on its own. As long as there is clear, constructive alignment between outcomes and assessment, UDL enables alternative pathways to achieving and demonstrating mastery of the stated outcome, making use of the three principles to maximise flexibility.

Learning outcomes form one of the three legs of <u>constructive alignment</u> as it guides assessment and evaluation, and informs how course activities should be designed so that they all line up and are not disjointed. This will optimise students' understanding (the "aha moment!") of why they are engaging in each part of the course.

Learning designers often draw upon Bloom's taxonomy (Krathwohl, 2002) which comprises three hierarchical models, with associated lists of verbs, to classify learning outcomes into levels of complexity (simple \rightarrow complex) and specificity (concrete \rightarrow abstract) in cognitive (knowledge = "know"), psychomotor (skills = "do") and affective (disposition = "reveal") domains.

Cognitive course objectives and learning outcomes

In higher education outcomes are mostly cognitive in nature. The revised version of Bloom's cognitive taxonomy differentiates six levels of complexity:

- Remember (e.g. recognise, recall)
- Understand (e.g. interpret, exemplify, classify, summarise, infer, compare, explain)
- Apply (e.g. carry out, implement)
- Analyse (e.g. examine, inspect, scrutinise, investigate, research, study, differentiate, organise, structure)
- Evaluate (e.g. check, critique)
- Create (e.g. generate, produce)



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Figure 3: <u>Bloom's Cognitive Taxonomy</u> (Armstrong 2010)

Which we have extended to include outcomes that are more in line with our social justice imperative, other <u>types of learning</u> (e.g. learning alongside others in authentic contexts, contributing knowledge not just consuming knowledge, taking action to advocate for a more socially just society - even in a small way) underpinned by learning theories or approaches such as situative learning⁵, connectivism⁶ and Freire's liberationist ideology⁷):

- Engage in the authentic field of practice (e.g. collaborate, debate, thrash out)
- Contribute in public spaces (e.g. present, share, report)
- Advocate beyond the classroom (e.g. initiate, promote, foster)

⁵ Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university press.

⁶ Siemens, G. (2017). <u>A learning theory for the digital age</u>. *Foundations of learning and instructional design technology*.

⁷ Freire, P. (1985). *The politics of education: Culture, power, and liberation*. Greenwood Publishing Group.



Figure 4: Extension of Bloom's Cognitive Taxonomy for equitable learning design

Deciding on the appropriate level of complexity of the outcome is very useful for thinking about how the student might learn how to achieve this outcome, how you might best support their learning (e.g. teach, design activities, facilitate discussion, select resources and tools) and how to construct suitably aligned assessment.

To help us narrow-down the types of cognitive learning that we hope our students will achieve, we can use the revised version of Bloom's cognitive taxonomy which differentiates four dimensions of knowledge as:

- Factual knowledge which refers to terminology, rules, "facts"
- **Procedural** knowledge which refers to processes or methods of inquiry, criteria for using skills, algorithms, techniques
- **Conceptual** knowledge which concerns how we classify, categorise, make generalisations, apply theories, construct models
- **Metacognitive** knowledge which describes how we think about our own learning, in other words our self-knowledge, that enables us to make better strategic choices of what to learn, when, where, and how.

Each of these dimensions can be processed at different levels of complexity. In our <u>Extended</u> <u>Matrix of Bloom's Cognitive Taxonomy</u> we have included verbs that differentiate the types of learning that we would like students to achieve. This table is not exhaustive by any means,

but will hopefully provide those undertaking learning design a quick list to consult as a way to refine learning outcomes. (Please feel free to make your own copy and customise it by adding the verbs that are most applicable in your discipline.)

What do students need to know by the end of the course?	In other words, what cognitive knowledge do students need to reveal by the end of the course? Is the knowledge: Factual Procedural Conceptual Metacognitive
	 What level of complexity do students need to be able to reveal cognitively: Remember Understand Apply Analyse Evaluate Create Engage Contribute Advocate
	Remember to think about: How many perspectives do you bring to bear on topics? Whose knowledge is being privileged, marginalised or perhaps even silenced?
	UDL Checkpoint 7.2: <u>Optimise relevance, value, and authenticity</u> UDL Checkpoint 8.1: <u>Heighten salience of goals and objectives</u> UDL Checkpoint 7.1: <u>Involve learners, where and whenever possible</u> , in setting their own personal academic and behavioral goals
	Example: By the end of the course students will be able to set their own personal academic and behavioural goals.

Table 6: Think about cognitive course objectives and learning outcomes

Psychomotor course objectives and learning outcomes

The psychomotor domain encompasses physical movement, coordination, and use of the motor-skill areas. In a higher education space (e.g. laboratory, studio, computer) the psychomotor domain will typically exist in tandem with cognitive skills and affective orientations. Bloom and his colleagues suggested the category of "Psychomotor Taxonomy", but it was never published by the original group (Krathwohl). Some psychomotor taxonomies were subsequently published by Simpson (1966), Dave (1970), Harrow (1972). The one below is adapted from the work of Dave (1970 as cited in Clark 2015).

Imitate — (e.g. copy, mimic, repeat, replicate, reproduce, trace)
Manipulate — (e.g. act, build, execute, perform)
Master — (e.g. calibrate, demonstrate, master, perfect, act precisely)
Modify — (e.g. adapt, construct, combine, customise, formulate)
Invent — (e.g. create, design, develop, manage)

What do students need to do by the end of the course?	What skill sets should the students be able to develop (e.g. written, oral, visual communication, sign language, presentation skills, digital skills, numeracy skills, graphicacy skills)?
	UDL Guideline 5: Provide options for Expression & Communication UDL Checkpoint 9.1: Promote expectations and beliefs that optimize motivation UDL Checkpoint 9.2: Facilitate personal coping skills and strategies

Table 7: Think about psychomotor course objectives and learning outcomes

Affective course objectives and learning outcomes

The affective domain, outlined by Krathwohl (1964), focuses on interests, attitudes, opinions, appreciations, values, and emotions. More than simply knowing a concept - the affective domain gives us a space to explicitly consider how a student might feel about an idea, a principle, practices, processes, etc. While it is not always easy in a higher education context to identify instances where an affective learning outcome is possible, an easy starting place is anything involving group work where collaborative or cooperative skills are key, and an opportunity for affective growth exists. In this document for convenience we refer to the development of 'dispositions' as a generic term for affective outcomes, but this could easily be substituted by inclination, value, etc. The list below is adapted from Krathwohl (1964).

Listen - (e.g. acknowledge, attend, follow)

Respond - (e.g. answer, assist, aid, comply, conform, discuss, perform, present, tell)
Value - (e.g. appreciate, demonstrate, initiate, invite, include, join, propose, respect, share)
Relate - (e.g. arrange, plan, compare, cooperate, collaborate, synthesise)
Discriminate - (e.g. act, display, influence, modify, revise, resolve)

What do students need to be / reveal / feel / by the end of the course?	What ways of being should the students be able to develop (e.g. inclusivity, self-determination, perseverance, self-regulation, self-motivation, self-belief / self-efficacy, criticality, reflexivity, tolerance of anxiety and/or frustration)? How can these dispositions be encouraged, nurtured and acknowledged?
	UDL Checkpoint 9.1: Promote expectations and beliefs that optimize motivation UDL Checkpoint 9.2: Facilitate personal coping skills and strategies UDL Checkpoint 9.3: Develop self-assessment and reflection UDL Checkpoint 7.1: Involve learners, where and whenever possible, in setting their own personal academic and behavioral goals

Table 8: Think about affective course objectives and learning outcomes

Learning and teaching strategies

To understand which teaching and learning strategies to adopt, it is useful to understand how students learn.

Referring to the specific outcomes from the previous section, how best might your students learn to accomplish these outcomes and how might you best teach them? Sometimes it is difficult to differentiate where learning begins and where teaching ends as usually both students and lecturers are learning and teaching at some point in the educational interaction. Nevertheless, to be more conscious of the student-centred approach, where students are engaging more directly with the learning activities and lecturers are not only the "sage-on-the-stage", we have differentiated between learning and teaching strategies to provide some examples to prompt your thinking.

Learning types

Diana Laurillard's Conversational Framework (2013) is a useful model for designing a teaching and learning strategy. This framework identifies six key types of learning interactions that can take place in a classroom, and provides a structured approach to designing teaching and learning activities that facilitate these interactions. The six types of interactions are:

- 1. **Acquisition** students receive information from the teacher or from resources such as textbooks or online materials.
- 2. Investigation students engage in active questioning and problem-solving.
- 3. Discussion students exchange ideas and opinions with each other.
- 4. Collaboration students work together on a task or project.
- 5. **Production** students create a product such as an essay, report, or presentation.
- 6. **Practice** students engage in activities to develop skills or knowledge.

Given our deliberate focus on social justice we have added engaging with the authentic community (acquisition, inquiry, practice), contributing insights beyond the classroom walls (collaboration and production) to the framework.

Using this framework, a teaching and learning strategy for an undergraduate class might include the following elements:

- <u>Acquisition</u>: The teacher could provide a lecture or presentation on a particular topic, or direct students to read a specific text or watch a video to acquire foundational knowledge. Students could listen to stakeholders in the field of practice though guest lectures, following stakeholder blogs, conference presentations, etc.
- 2. <u>Investigation</u>: Students could be given a problem or question related to the topic and work in small groups to research and explore possible solutions. This could involve independent research, or a guided activity with prompts and resources provided by the teacher. Students could talk to stakeholders in the field of practice during invited interviews, posing questions on a blog, etc.
- 3. <u>Discussion</u>: Students could come together as a class to share and compare their findings, discussing their perspectives and debating different points of view. This could be facilitated by the teacher through structured questions or prompts that encourage students to engage with each other's ideas.
- 4. <u>Collaboration</u>: In groups, students could be asked to create a presentation or other project related to the topic, drawing on their research and discussion to produce a shared outcome. This could involve each student taking on a specific role or task,

such as researching a particular aspect of the topic or designing visual aids. Students could collaborate in contributing insights in public spaces, for example editing a Wikipedia page, presenting at institutional conferences (e.g. Teaching and Learning Conference at UCT).

- 5. <u>Production</u>: Students could be asked to individually write an essay or report, synthesising their research and discussion into a coherent written piece. This could be assessed using a rubric that evaluates both content and writing quality.
- 6. <u>Practice</u>: To consolidate their learning, students could be given a series of practice exercises or quizzes that test their knowledge and understanding of the topic. These could be completed individually or in pairs, with feedback and guidance provided by the teacher. Students could observe and contribute, even in modest ways, to practise in the authentic context through field visits, work shadowing during vacations, etc.

Overall, this teaching and learning strategy seeks to engage students in a variety of learning interactions, from acquisition of foundational knowledge to collaboration on a shared project. By providing opportunities for inquiry, discussion, and practice, students are encouraged to actively engage with the material and develop a deeper understanding of the topic. The teacher's role is to facilitate and support these interactions, providing guidance and feedback to help students achieve their learning goals.

Assessment strategies

Referring to the specific outcomes and the ways in which students might best learn to accomplish these outcomes, how best might you assess their competence and how might they assess their own competence?

Constructive alignment

There should be alignment between the desired learning outcomes of the course, its teaching and learning activities, and its assessments (Biggs, 2003). The term 'constructive' refers to the idea that students construct meaning themselves through relevant learning activities rather than meaning being imparted or transmitted from lecturer to learner (Biggs, 2003). If, for example, one of the key learning outcomes in a marketing course is to 'create a marketing strategy', the teaching and learning activities throughout the course should give learners the opportunity to learn how to do this, and one of the major assessments should be the creation of a marketing strategy.





Source: Gallagher, G. 2017. <u>Aligning for Learning: Including Feedback in the Constructive</u> <u>Alignment Model</u>. *AISHE-J*. 9(1).

CILT resource: Key concepts to assessment design

Further reading: Aligning Teaching and Assessing to Course Objectives

Relevance and authenticity

The contents of the assessment shows relation to a broader work environment and real-world context where applicable.

In some disciplines, especially those that are applied or profession-focussed, students will benefit from the opportunity to apply their learning to authentic contexts that they may encounter in their work or everyday life. This strengthens the application of the work, as well as feeding into UDL's multiple means of engagement.

Ideally, authentic learning opportunities should be provided, such as internships or real-world briefs from companies.

UDL Checkpoint 7.2 Optimize relevance, value, and authenticity

CILT case study example: EGS4047F - Environmental Policy and Practice

Continuous, formative assessment

Emphasis is placed on continuous formative assessment rather than solely on high stakes summative assessment.

Formative assessment involves assessment tasks that serve primarily to enhance the learning process by giving students the opportunity to develop the valued knowledge, skills, and attitudes of the discipline through constructive feedback and opportunities for revision and improvement of an assessment.

UDL Checkpoint 7.2 Optimize relevance, value, and authenticity

UCT cases

- Disability Studies postgraduate course
- <u>Science postgraduate course</u>

Variety of assessment methods

A variety of assessment methods are used throughout the course to support various learning preferences.

In line with UDL's principle of multiple means of expression, students should have various opportunities, as well as some choice where feasible, in how they demonstrate their learning in order to cater to various learning preferences, and to provide a multi-layered understanding of student learning and effectiveness of teaching.

UDL Checkpoint 5.3 <u>Build fluencies with graduated levels of support for practice and performance</u>

UCT example: Humanities undergraduate course

Collaboration

Assessments provide opportunities for collaboration via group work and peer assessment. This adds to variety in types of assessments and how they are assessed and encourages students to take more responsibility in the learning process. This is also relevant to one of the points above on preparing students for the labour market where they will need to collaborate and work in groups

Students take responsibility for complex and detailed peer assessment and feedback. Group work is used for authentic, collaborative tasks, perhaps linked to real world contexts where teamwork would be an expectation.

UDL Checkpoint 8.3 Foster collaboration and community

CILT case study examples:

- EDN4501 Education Technology
- FIN1005W Fine Art Foundation

Integration of technology

The integration of technology in assessments is planned and meaningfully used to enhance the learning process, and is equally accessible to all students.

The integration of technology may support variety in assessment and may enable increased accessibility for certain tasks, as well as fostering the development of valued digital literacies.

Clear indication of required technology uses or applications required for successful completion of the assessment with considerations shown for the potential limitations of technology availability. Encouraging use of optional tech tools for those students interested in enhancing their digital skills. Opportunities to develop digital literacies required in a professional setting. Use of technology in teaching and learning should be optimised for assistive technology that students may use.

UDL Checkpoint 7.1 Optimize individual choice and autonomy

UDL Checkpoint 4.2 Optimize access to tools and assistive technologies

UDL Checkpoint 7.2 Optimize relevance, value, and authenticity

CILT resource: Redesigning your assessments for online teaching

CILT case study examples: <u>LIS5025F - Principles of Digital Curation</u>

Challenging but manageable assessments

Assessments are set to be challenging at an appropriate level to the course level and credit value and can be completed within a given timeframe guideline.

UDL Checkpoint 9.2 Facilitate personal coping skills and strategies

Layout, structure and format of assessment

Layout and structure of the assessment submissions are clearly defined and transparent. Templates provided as needed.

Students should clearly understand the expectation when it comes to assessment format and completion. Students must be informed about:

- why they are being assessed,
- who is assessing,
- when they will be assessed,
- what methods will be used to assess,
- what criteria will be used to assess,
- how the final mark is derived, and
- appropriate appeal mechanisms.

UDL Checkpoint 8.2 Vary demands and resources to optimize challenge

UDL Checkpoint 9.1 Promote expectations and beliefs that optimize motivation

UDL Checkpoint 9.2 Facilitate personal coping skills and strategies

UDL Checkpoint 3.3 Guide information processing and visualization

Assessments in multiple languages

Opportunities should be provided for assessments to be administered and completed in a language other than English. Students should be able to draw on their full meaning-making repertoire in approaching assessments.

UDL Checkpoint 2.4 Promote understanding across languages

Further reading:

"Translanguaging" as a Socially Just Pedagogy,

UCT News | Translanguaging: Facilitating multilingual teaching

Translanguaging as a political stance: implications for English language education

Grading criteria, rubrics

Grading scales/criteria or rubrics are clearly defined and provide opportunities for self-assessment as needed. The assessment expectations should be explicit to students.

Grading criteria or rubric is clearly available to students. Rubrics or points / quizzes are available for self-assessment where applicable.

CILT resources: <u>Rubrics</u>, <u>Managing assessment</u> <u>Quick Evaluation</u>, <u>Grades and Rubrics</u>, <u>Classroom Assessment Techniques:</u> <u>Characteristics and Examples</u>, <u>Classroom Assessment</u> <u>Technique (CATs):</u> <u>One-Sentence Summary</u>, <u>Classroom Assessment Techniques (CATs):</u> <u>The Muddiest Point</u>, <u>The Memory Matrix Classroom Assessment Technique</u>, <u>Formative</u> <u>assessment:</u> <u>4 corners</u>

Quality of assessments - SOLO taxonomy

Judging the quality of assessments can be a tricky task, but there are some guidelines to help lecturers. Biggs and Collis first proposed their Structure of the Observed Learning Outcome (SOLO) taxonomy in a now out of print article in a book in 1982 as a:

"means of classifying learning outcomes in terms of their complexity, enabling us to assess students' work in terms of its *quality* not of how many bits of this and of that they have got right"⁸.

SOLO taxonomy comprise five levels of understanding:

- *Pre-structural* The task is not attacked appropriately;
- Uni-structural The student's response only focuses on one relevant aspect.
- *Multi-structural* The student's response focuses on several relevant aspects but they are treated independently and additively.
- **Relational** The different aspects have become integrated into a coherent whole.
- **Extended abstract** The previous integrated whole may be conceptualised at a higher level of abstraction and generalised to a new topic or area.

Like in Bloom's cognitive taxonomy, the SOLO taxonomy also lists verbs typical of each level (Figure 6).

⁸ <u>https://www.johnbiggs.com.au/academic/solo-taxonomy/</u>



Figure 6: SOLO taxonomy (from John Biggs⁹)

According to Gulzar (2021), SOLO levels can be "communicated through text, hand signs and symbols – across large and noisy learning environments while Bloom's levels can be communicated by text alone"¹⁰.

Further reading:

Digital Technologies Hub (n.d.). <u>SOLO Taxonomy guide</u>. Australian Government Department of Education.

Gulzar (2021, May 12). SOLO Taxonomy versus Bloom's Taxonomy.

Svensäter, G., & Rohlin, M. (2023). <u>Assessment model blending formative and summative</u> <u>assessments using the SOLO taxonomy</u>. *European Journal of Dental Education*, 27(1), 149-157.

Feedback

Feedback is provided timeously. Feedback must be presented to students while it still matters, this is especially important for formative assessment. Feedback communicated to be set for specific time frames which are met. Feedback is timeous in that it provides ample time for students to apply it to subsequent assessments. Feedforward approach is used - i.e. feedback is intentionally provided for incorporation into future assessments.

Feedback should be consistent across graders. Feedback should be fair and align with expectations set out to students. The UCT proposed <u>revised assessment policy work</u> also stresses the value and importance of feedback.

⁹ https://www.johnbiggs.com.au/wp-content/uploads/2013/01/solo_taxonomy.jpg

¹⁰ https://educarepk.com/solo-taxonomy-versus-blooms-taxonomy.html

Further reading: Moving from Feedback to Feedforward

UCT example: Building in feedback during assignment writing - Disability Studies

Develop

The Develop phase focuses attention on how to create/develop/produce teaching, learning **materials or wrap-arounds of existing materials, assessment briefs, rubrics** using the most suitable combination of **tools** in the course to achieve the course and learning outcomes. The development phase begins when you have a design plan. In reality, it's sometimes tricky to tell when the design phase ends and the development phase begins other than to provide examples. For example, in the design phase a lecturer might plan to conduct a survey, write down the questions and identify the type of graphics to be used in the survey. These draft questions and graphic examples can be handed over to someone else (e.g. a tutor, learning designer) to create the online survey in *Google Forms* with re-drawn or openly licenced graphics inserted at the correct place.

This phase can include:

- Creating the content and/or processes using the tools identified in the previous phase in iterative cycles of development. To experience a set of processes and develop a set of tools that enable you to create a pilot, this enables articulating design inclinations and goals; as well as selecting and applying a mid-level instructional theory.
- Building an initial prototype or pilot with sample content (not fully developed yet)
- **Sharing these ideas** with various stakeholders (e.g. subject matter experts, potential learners, the commissioning agents, other instructional designers, other developers).
- **Revising the initial prototype** or pilot until there is agreement on the way forward
- **Developing** the full intervention for a lesson, a module, a programme, etc.

Within development, the following elements are pertinent, namely, *structuring learning*; *developing materials* and *planning for interaction*.

Teaching and Learning materials

A principle matter in relation to socially just education is the selection of existing resources, the creation of new materials and being mindful of whose perspectives are being foregrounded and which are marginalised or even silenced. So a key question to re-ask is: To whose ideas am I introducing the students and are these broad enough to include different perspectives on the same issue?

What teaching materials (artefacts, text, diagrams, audio, video, simulations) do you need to develop and which may be available as Open Educational Resources?

The type resources and their formats are usually embedded into the design of learning and teaching activities, but it is useful to think about resources separately as different resources as some are more accessible to students both during and after their studies. We should make full use of existing openly licensed resources (e.g. Open Educational Resources, Open Access journal articles and e-Books) and, where relevant, make bespoke and lecturer /tutor

or student-created materials available openly with a reference that indicates version updates and a Creative Commons licence that makes the permissions for reuse clear.

For pragmatic reasons, learning designers often differentiate between 'resources' as those that already exist as Open Access journal articles and e-Books, and teaching and learning 'materials' that are custom-made for the course (e.g. surveys, presentations, assessment briefs and rubrics).

Existing resources		New materials	
"Closed"	"Open"	"Custom-made"	"Lecturer /tutor or student-created"
Types Books, chapters, articles, reports behind a paywall.	Types Books, chapters, articles, reports, dissertations, theses, newspapers, websites, released as "Open access" or "Open Educational Resources", videos on YouTube (e.g. interviews, conference presentations), audio books, podcasts,	Types Videos, screencasts, simulations created with professional production assistance (eg. by the CILT Digital Media Unit) Text design and icons in the digital learning platform (e.g. Vula, Amathuba)	Types Lecture notes, glossaries, Frequently Asked Questions (FAQs), How-to-guides, assignment templates (headings, referencing style), assessment briefs, assessment rubrics
Availability Students have access to quite a lot of these at UCT, but no access once they leave university ¹¹	Availability Access to all	Availability Often limited and no access once they leave university, so encourage students to download at the time	
Referencing Standard (e.g. APA, Harvard)	Referencing Some follow standard referencing, but needs guidelines / instruction for others	Referencing Often not provided making materials difficult to cite.	

Table 9: Existing and new resources

¹¹ Alumni who have graduated from the University of Cape Town may apply to UCT Libraries for a subscription lasting 6 months or a year. The subscription is granted for research purposes only, and is subject to approval. Please refer to the following https://lib.uct.ac.za/about-us/access-and-membership for more information. (Personal

https://lib.uct.ac.za/about-us/access-and-membership for more information. (Personal communication from UCT Librarian, Ms Nuroo Davids, 17 Feb 2023)

Open Educational Resources

Before you spend unnecessary time and money, consider exactly which learning materials you need to develop and which may be available as Open Educational Resources (OER). Because OER have licences (called <u>Creative Commons licences</u>) that make permissions about their re-use clear up-front so as long as you acknowledge (i.e. provide attribution) to the creator, you may be able to distribute, remix, adapt, and build upon the material in any medium or format.

Thinking about tools in relation to student activities

A simple way to think about selecting tools is in relation to what you want students to do, i.e. listen, read, write / type and talk/sign (Table 10)..

Student activity If students need to 	think about using these tools	UDL checkpoint (if applicable)	following these tips
Listen	Live lectures, audio podcasts, screencasts, and/or videos with transcriptions E-books with written text Music with notation	UDL Checkpoint 1.2: <u>Offer</u> <u>alternatives</u> <u>for auditory</u> <u>information</u>	 Students can use the <u>Live Transcribe</u> app on their mobile phones to transcribe a lecture Use an audio recording where visual material is not essential, but provide transcriptions for members of the deaf/Deaf community Keep the audio short Segment the audio as it is not searchable in the same way that video is, so keep file names content specific and numbered Trial run your recording CILT / UCT Resources on Tools <u>Audio recordings and podcasts</u>
Watch	Presentations Videos Animations, Screencasts speech-to-text articles/books, music with notion; watch videos, animations,	UDL Checkpoint 1.3: <u>Offer</u> <u>alternatives</u> <u>for visual</u> <u>information</u> 1.2: <u>Offer</u> <u>alternatives</u> <u>for auditory</u> <u>information</u>	CILT / UCT Resources on Tools Create a narrated presentation PowerPoint

Table 10: Thinking about tools in relation to student activities

	screencasts with/without transcriptions		
Read	Online articles, e-books Screen-readers Lecture notes	UDL Checkpoint 4.2 <u>Optimize</u> access to tools and assistive technologies	 Refer students to online articles or e-books. Academic publishers increasingly endeavour to conform with level AA of the <u>Web Content</u> <u>Accessibility Guidelines (WCAG) 2.1</u> and <u>Section 508 Standards of the U.S.</u> <u>Rehabilitation Act</u> so keep their platforms up-to-date with the latest screen-reader specifications and provide text-to-speech functionality. The platforms usually allow for resizing even without assistive technology and Arrange text in a logical order and use text headings / styles consistently so that the reading and navigation order are logical and intuitive and optimises screen reader functionality The pdf versions of documents in Amathuba can be automatically resized without assistive technology up to 500% without loss of content or functionality. Provide ALT-text descriptions for non-text elements so that screen readers can automatically "read" explanations of images. Don't "decorate" lecture notes, presentation slides, etc. with unnecessary images.
Write / Type	Word processors (e.g. Word, Google Docs), presentations (e.g. PowerPoint, Google Slides), email clients (e.g. Outlook, Gmail),	UDL Checkpoint 2.5 <u>Illustrate</u> <u>through</u> <u>multiple media</u> 5.2: <u>Use</u> <u>multiple tools</u> <u>for</u> <u>construction</u> <u>and</u> <u>composition</u>	 Word processing applications - ensure you provide more than one format (e.g. downloadable slides as well as a recording of a narrated powerpoint; or Word and PDF versions of documents; captioning for videos). As most word processors (e.g. Word, Google Docs) now have "voice typing" options (e.g Google Docs - CTRL-Shift-S), alert students to these options so that they have alternative ways of writing. Granted some editing might still be necessary, but for blind students a scribe could assist with formatting

			 and punctuation that is not always accurate. Presentation software (e.g. PowerPoint, Google Slides) allows for "voice typing" in the speaker notes Emailing software (e.g. Outlook - Message - Dictate) allows for "voice typing" or dictation for composing text messages Accessibility checkers - using the in-built accessibility features of standard applications like MS Word, Powerpoint or the Amathuba platform are a good start (these will generate reports on what changes you can make). UDL checkpoint:1.1 Offer ways of customizing the display of information CILT accessibility checklist for Amathuba course sites CILT / UCT Resources on Tools WhatsApp: Guidelines on how to use groups for teaching and learning
Talk / Sign	<u>Group work</u> - in person or virtually through MS Teams. Online discussion forums <u>Think-pair-shar</u> <u>e</u> during classroom time <u>Peer teaching</u>	UDL Checkpoint 8.3 <u>Foster</u> collaboration and community UDL Checkpoint 5.3 <u>Build</u> fluencies with graduated levels of support for practice and performance	 If students need to talk to each other, ensure that those who are part of the deaf/Deaf group either have a partner who understands sign language or give them the option to write or draw. The latter may take a little longer. For group work - provide clear expectations and guidelines of how the groups should be set up and terms of engagement Support groups in the forming stages and monitor their functioning (to be able assist) For small f-2-f classes have students collect a <u>LEGO Braille Brick</u> for group allocation. Encourages sighted students to become aware of braille For peer-to-peer teaching, using online surveys/ forms can help to capture the learning Resources: <u>A Practice Guide to Groupwork</u> <u>in Higher Education</u>

Which tools will you use to create accessible and inclusive teaching and learning materials?

Creating inclusive teaching and learning materials and resources

In general, whether your materials and resources are in the form of text, diagrams, audio, video, simulations, the following recommendations apply (Table 11).

How do you create inclusive teaching content?	On applying UDL in the Development phase, Kearney (2022: 34-35) suggested the following considerations, such as by including materials and resources that: • Are provided in multiple ways
	UDL Checkpoint 1.3: <u>Offer alternatives for visual information</u> UDL Checkpoint 1.2: <u>Offer alternatives for auditory information</u>
	 Are accessible, concise, and explicit UDL Checkpoint 1.1: <u>Offer ways of customizing the display of</u> <u>information</u>
	Use inclusive language UDL Checkpoint 2.4: Promote understanding across languages
	 Engage students' prior knowledge UDL Checkpoint 3.1 <u>Activate or supply background knowledge</u>
	 Include a variety of relevant contexts/ origins in any examples or cases, which would allow students to relate better to the concepts. UDL checkpoint 7.2 Optimize relevance, value, and authenticity
	 Allow flexibility in the pace or order of learning UDL Checkpoint 7.1: <u>Optimize individual choice and autonomy</u>
	CILT Guides <u>CILT Guide on Creating Written and Static Visual Content</u>) <u>Inclusive Learning through Universal Design for Learning (UDL)</u>

Table 11: Cre	eating inclusive teaching	ng and learning mat	terials and resources

Developing written materials

Written content refers to pieces of text which may or may not be supplemented with static images that you create to teach specific concepts. Depending on your course design, you may devote more of the course to creating or developing your original content, or linking out to external resources to provide the bulk of the written materials your students will need to read, comment upon and even edit. Written text needs to be accessible in a range of software such as word processing (e.g. *Word, Google Docs*), presentations (e.g. *PowerPoint, Google Slides*), email clients (e.g. *Outlook, Gmail*) and spreadsheets (e.g. *Excel, Google Sheets*).

Ensuring that text is accessible

- Use **headings /styles** consistently to convey meaning and structure so that the navigation order is logical and intuitive and optimises screen reader functionality
- Use font sizes that are legible. The recommended body text size is about 12 and 9 for footnotes. However, most digital text can be automatically resized without assistive technology up to 200 percent without loss of content or functionality. If printed copies of written text are distributed, ensure that students also have access to electronic versions so that they can benefit from resizing functionality.
- Select text and background <u>colours that contrast well</u> to make the text easy to see otherwise people with low vision might find it hard to read text that does not contrast with the background
- Specify **column header information in tables**. Assistive technology such as screen readers use the table header row to help convey to the user the current cursor location in the table and to provide information that enables the user to navigate the table.
- Create tables that are simple rectangles with no split cells, merged cells, or **nesting** as these are difficult for assistive technologies to navigate
- Ensure that **document access is not restricted** as this can prevent devices such as screen readers from having access to a document
- Presentations: Give every **slide a title** to enable users to navigate within a presentation, including finding and selecting a single slide. Use alt text where there are images or graphics
- Spreadsheets: Use **symbols** (e.g. -1000) rather than colour (e.g. red to distinguish negative numbers) as those who have difficulty distinguishing colour won't be able to tell the difference between positive and negative values
- Spreadsheets: Give **sheet tabs meaningful names** otherwise default sheet names (i.e. "Sheet1") will be used by assistive technologies.

Organising and structuring written text

Developing content is also about organising the content in logical units, or modules/lessons/sessions, in which each unit is organised around a major topic and contains relevant objectives, material, and associated activities. One key concern of developing written materials is that of organising or structuring the course content. It is advisable to provide an 'obvious' path through the material (which need to be read for what lecture / session, which materials need to be read in sequence, which are compulsory or optional), and thereby making sure guideposts are clear to the student. This text is usually written for the digital platform sections or links to these sections. Learning designers often call this 'instructional text' and it is very helpful for students as it is an explicit indicator of what you expect.

Within each module, chunking matters too, with a preference for presenting content in chunks that are easily digestible (Smith, 2008). When presenting text, it helps to format the content for the Web by breaking it into short paragraphs and using headings, bullets, graphics and other formatting devices that make web pages easier to read and comprehend. The 7+/-2 instructional design rule of thumb, based on the work of psychologist George Miller, suggests inclusion of 5 to 9 pieces of information in a segment. Strategically chunking

content helps students to absorb the information, avoiding information overload and exhaustion (Garrison, Anderson & Archer, 2001). It may also allow students to digest the chunks of material by providing short recall or application questions after each one. Research has demonstrated the critical role of retrieval practices for conceptual learning (Karpicke & Blunt, 2011; Karpicke & Roediger, 2008).

In the introduction to the module/lesson/session, it is advisable to include information about how long the student should expect to spend working on the module, although be cautious about making assumptions of an 'average' student when your intention is to recognise diversity. Providing some indication of how much time they should spend on a topic or activity can help students plan and keep on track for upcoming milestones (Shea, Fredericksen, Pickett & Pelz, 2003; Shea, Pickett & Pelz, 2003). UDL checkpoint: 6.2 Support planning and strategy development.

Examples of written resources that anticipate student needs

In endeavouring to make all students feel comfortable we can anticipate some of their needs through documents such as <u>Glossaries</u> and <u>Frequently Asked Questions</u>.

Developing diagrams, images, photographs

While print texts have historically been "word-heavy", increasingly, authors are exploring low text genres such as infographics or concept mapping as learning materials (Table 12).

Table 12: Tools for developing diagrams, images, photographs

Purpose	Tools
Infographics provide a way to represent content in concise visual form	 <u>Ease.ly</u> <u>Canva</u> UCT staff have free access to a short <u>Canva course</u>
Concept mapping provides nonlinear visual ways to understand, produce, and represent knowledge, and can support the recall information.	 <i>Lucid chart</i> (part of the Google Suite), <u>CmapTools</u> <u>Coggle</u>
Quality, openly licenced images and icons can be sourced from a number of publicly accessible websites. Make sure you attribute as required and use ALT-text labels for students with visual impairments.	 <u>Unsplash</u> <u>WikiMedia Commons</u> <u>Pixabay</u> <u>Openverse</u> <u>The Noun Project</u>

Additional reading: Using Visual and Graphic Elements While Designing Instructional Activities

Developing video

How do you develop multimedia resources, accessible images, and materials to illustrate concepts?

When presenting audio or video, include a brief description and information about the length. Keep the segments short, from 2-15 minutes, to help maximise listeners' retention (Smith, 2008).

Example from CAST <u>Media & Materials</u> on how to make Video fully accessible: A helpful workflow: <u>AEM Center: Creating Accessible Video</u>

UDL Checkpoint 7.1: Optimize individual choice and autonomy UDL Checkpoint 8.2: Vary demands and resources to optimize challenge

CILT Guides

- Digital materials production guidelines (Source: CILT Teaching and Learning Portfolio)
- CILT Using video in an online context
- CILT <u>Guidelines to writing video scripts</u>

Further reading

Council on Higher Education (CHE) in 2014. <u>Distance Higher Education Guide in a Digital</u> <u>Era: Good Practice Guide</u>, Pretoria: CHE.

Smith, B., & Brame, C. (2014). <u>Blended and Online Learning</u>. Vanderbilt University Center for Teaching.

Taylor Institute for Teaching and Learning. <u>Lesson 6: Structuring Course Content</u>. University of Calgary

CILT Amathuba Tool Wheel

The Tool Wheel below (Figure 7), prepared by CILT illustrates the tools according to Laurillard's learning types.



Figure 7: CILT Amathuba Tool Wheel

Implement

Whether the class is being taught in a face-to-face setting with some activities online or fully online, the key implementation question is: HOW can the learning environment be as accessible, inclusive and equitable as possible? In other words, instead of thinking about how the students can adapt to the face-to-face setting, blended or online learning setting, constantly think about how you might make the environment as welcoming and supportive as possible. There are a few key aspects to consider in order to optimise the implementation of blended learning. These include the mode, the first interaction and grouping activities

Mode: Platform / Venue

When blended learning is being offered one must think of both the physical setting and the online environment. These details are summarised in Table 13.

Table 13: Blended learning - the physical setting and the online environment

Physical f-2-f E setting	Blended	Online setting
--------------------------	---------	----------------

Accessibility Materials	Check that the lecture venue has wheelchair access, a couple of extra chairs on level flooring in a raked venue	Make learning and teaching materials available online BEFORE the start of the session so that students with screen readers can have an opportunity to at least scan the major components of the teaching and learning documents (assuming that these have been designed and developed accessibly). This could also be valuable for students with hearing impairments or dyslexia and who may want to print out some of the notes before the session with their selection of font, size and layout.
Lecture recording	Check that the lecture venue has <u>lecture recording</u> <u>facilities</u> so that students can re-listen or re-watch. <u>Set up recordings</u> . Recordings will usually be available within one working day of the lecture.	If the venue does not have lecturer recording set up, you can schedule a MS Teams meeting anyway, and use it to record the lecture. If you have MS Teams integrated into your Amathuba course site, all the students will have access; otherwise you can download the recording and add it to your course site along with any slides. Remember to press the "Record" button on the streaming video platform (e.g. MSTeams)

1st contact

The first contact with students sets the stage for the rest of the course so to put all students at ease and be as welcoming as possible. Here are <u>guidelines</u> for making your early engagements with students positive and encouraging (Table 14).

	Physical f-2-f setting	Blended	Online setting
Create rapport with students	Smile and keep eye contact with students so that you can humanise the learning engagement! Remember that students who are hearing impaired will need to watch your face, your mouth and gestures very carefully - don't be distracted by this.	Smile, look directly at the video on so that yo learning engagement. students with hearing read.	the camera and keep ou can humanise the This also allows impairments to lip

Table 14: 1st contact in physical setting and/or online environment

Speak clearly	Use a lapel mic to ensure that students can hear you. Close lecture hall doors to keep noise levels down.	Ensure that your computer sound is as audible as possible.
Keep instructions concise	Keep instructions to-the-point and always include them in a written and verbal form	Have a copy of the instructions typed up in a document (e.g. Notepad) that you can quickly copy and paste into the Chat - especially if there are links to other sites Always read instructions and then ask for clarification
Provide overview of the course	Describe the flow / shape of the course in the 1st session in written, verbal and ideally diagrammatic form (e.g. <u>graphic organisers</u>) and ask for clarifications and suggestions	

Grouping

To make the optimum use of the session time, create at least one student group activity during the session (Table 15).

	Physical f-2-f setting	Blended	Online setting
Vary the type of grouping - general	If you have undertaken a pre-course student survey you can draw upon this data to help you select the preferred grouping arrangements indicated by the students. If not you can use one of the following strategies for the first session and then ask them for their input after the first session. Think-Pair-Share (Work individually first then in a pair) Pairs Groups of three (Triads) Groups of four (Quads) Small groups (5-7) Big groups (10+)		
Vary the type of grouping - 1st session	For a 1st session when students don't know each other yet, it is probably easiest in a raked venue to have students work in pairs, triads or quads If you have a flat	Depending on the class session activity in bread probably best accomp quads or small groups is yet familiar with the are too few people in a	as size, the 1st akout rooms is lished with random in case not everyone platform and there a group.

Table 15: Grouping in physical settings and/or online environments

	venue and students can move easily then there are many options		
Moderate noise level	Group work can be very noisy for hearing impaired students, so encourage students to speak directly to their peers to aid lip reading and not to talk over each other	Create breakout room Encourage students to to enable others to se reading	s for groups o switch on their video e them to aid lip
Feedback from group work - close feedback loop	Close the feedback loo reporting strategy	op from group work by	providing some
Feedback from group work - reporting strategies	Consider allowing students to nominate a peer group to report back verbally Consider using recycled paper for written or diagrammatic student feedback	Consider arranging for students to undertake their group activity online and then present in person or the other way around	Consider having students contribute their feedback from group work to a shareable Google Doc, Google Slides

Evaluate

The "evaluation phase promotes an iterative systematic approach to designing and developing online learning through testing enacted designs as a way to inform current or future development" (Dabbagh & Bannan-Ritland, 2005:235). Comprehensive evaluation usually follows these steps:

- 1. **Purpose:** Clearly determine the purpose of the evaluation. For example, to identify students at risk, improve student engagement, resources, lecturer pedagogical skills and/or overall course quality.
- 2. **Stakeholders:** Identify who should be involved in the evaluation. For example, the students, the tutors, the lecturers, the course administrator, the external examiner, learning designer, a researcher?
- 3. **Methods:** Select suitable methods of evaluation. For example, for informal data gathering: Student comments or questions in-person or online (e.g. verbal or written in a Chat, lecturer and/tutor observations)
- 4. **Timing:** Identify when evaluations are to take place. For example, formatively before, and during the course or summatively after the course.
 - a. Formatively evaluate the design and development of the online materials and in-person or online activities prior to launching the course and revise the accordingly

- Formatively evaluate the implementation of the course and note down observations and experience reflect on what changes can be made immediately
- c. Formatively evaluate students engagement with the face-to-face and/or activities on the digital learning platform and identify students at risk
- d. Summatively reflect and deliberate on lecturer and/ tutor informal observations and experience and decide on what changes can be made for the next cohort
- e. Summatively evaluate student engagement, the materials, the activities, the lecturer and/or tutors
- f. Compare summative evaluation to students' final assessments and/or examinations.

Formative evaluation

Formative evaluation is characterised as "a **judgement of the strengths and weaknesses of instruction in its developing stages for the purposes of revising the instruction** to improve its effectiveness and appeal" (Tessmer cited in Dabbagh & Bannan-Ritland 2005:257). Formative evaluation processes "typically include a progression from testing the online learning materials in **smaller, contrived settings with just one learner,** to small groups with more realistic settings, then finally to larger groups reflecting the context in which the instruction or training will be delivered. Methods may also include reviews of the online materials by **experts who critique the design**" (Dabbagh & Bannan-Ritland 2005, p.153).

Summative evaluation

Summative evaluation is usually undertaken at the end of a term or course and is predominantly used for judgements by the students on their experience of the materials, teaching, learning and assessment activities as part of a formal course evaluation to inform changes for the next cohort. It can also be used formally by other stakeholders, such as external examiners or informally by lecturers, tutors and administrators on their observations of what can be changed for the next cohort.

	Informal	Formal
Formative	 BEFORE the course: Ask one student or small group to provide verbal feedback using a talk-aloud method 	 BEFORE the course: Ask a subject matter expert, colleague for recorded verbal or written feedback in a log or report
	 DURING the course: Listen to comments and questions from students in in-person or online lectures and/or tutorials Share the course documents (e.g. Course Outline, Assessment Briefs) on a shared platform (e.g. 	 DURING the course: Save Chats on video-conferencing platforms (e.g. MSTeams) to be scrutinised for comments on the course content, structure, etc. Check on the data analytics provided by the digital

Table 16: Formative and summative evaluation using informal or formal methods

	 Google Doc) then you can set permissions for students to "Comment" (not edit). This provides the opportunity for students to ask questions or make comments in the course documents immediately Arrange a quick feedback exercise (micro-evaluations) in the first week of the semester and ask students to comment on accessibility, clarity and comprehensiveness of the course documents. This also provides an opportunity to discuss suitability of dates, times, platforms and tutorial groups. (You could hold in-person discussions, use a Google Form, a question posed on Padlet, a Poll on Zoom, etc. Checkpoint 7.3 Minimise threats and distractions. UDL Checkpoint 4.1: Vary the methods for response and navigation Check for unsolicited comments did students leave on shared documents or in emails, in Comments or in emails, in Comments or survey on Amathuba xxx, Lecturer and/or tutors to note down observations and experience reflect on what changes can be made immediately 	learning platform and identify students at risk
Summative	AFTER the course: • Lecturer and/or tutors to reflect and deliberate on	AFTER the course: • Students complete a course evaluation in the form of a
	observations and	questionnaire

experience and decide on what changes can be made for the next cohort	 Students invited to participate in in-depth qualitative interviews External examiner to provide report on course
for the next conort	 External examiner to provide report on course

Feeding data analytics, assessment results summative feedback into next cycle The data analytics produced by the digital learning platform. the student assessment achievements (or lack thereof), the summative feedback (e.g. course evaluations) from the students and evaluation reports from external examiners can be usefully be reflected upon and drawn into the planning for the next cycle of TEDDIE.

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