

A UDL Approach to Curriculum Design and Assessment Using Fink's Model of Course Design for Significant Learning.

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Abstract.

Inclusive education constitutes a key component of the global policy agenda, mandating national governments and their respective agencies to formulate and enact measures that foster inclusive practices (Wright, 2010). In the Irish context, there have been significant advancements in conceptualizing and addressing matters concerning equality and active inclusion within educational environments (Rose et al., 2010).

Universal Design for Learning (UDL) is a set of principles for curriculum development that provide all individuals with equal opportunities to learn and succeed at third level (AHEAD, 2018). A UDL approach seeks to improve the educational experience of all students by integrating more flexible methods of representation, engagement and expression into the learning environment and this integration begins with good curriculum design and structures of assessment.

This paper focuses on Fink's approach to course design (2003) which illustrates the importance of an integrated course and how it can be used to embed the principles of UDL in third level education. It is hoped that this paper will provide an outline of the module development process for professional practitioners, encourage the integration of UDL principles in courses in a way that promotes significant learning for students, and provide insights into how responsive curriculum development may be achieved in third level education.

Keywords: Assessment; Curriculum Design; Engagement; Expression; Representation; Significant Learning; UDL.

1. Introduction.

Creating an effective learning environment begins with good module design. A UDL approach brings awareness to the design of the curriculum, teaching practices, assessment methods, support services, and the physical environments in a way that accommodates the ever-increasing diversity of learners (Quirke et al., 2018). From this UDL perspective, it is recognised that every learner is different, that learning needs to be adaptable and responsive and there is no such thing as the average learner (Burgstahler, 2009). There are a variety of models for the design of courses in higher education (Toohey 1999; Biggs 1999) all of which have their merit and share several commonalities. This paper focuses on Fink's approach to integrated course design (2003) which allows us to see the importance of an integrated course and how it can be used to foster the UDL principles of multiple means of expression, representation, and engagement. Such instructional models benefit learning by providing a structured approach to lesson planning and delivery that enhances student understanding and engagement, facilitates collaboration among educators and helps tailor instruction to meet diverse learning needs (Gagne et al., 2005).

This paper firstly progresses through the five stages of the initial design phase of Fink's model for designing an integrated course. This curriculum design was guided by Fink's model; his approach shifts the emphasis from content toward the goals and skills the instructor wants their students to retain after the course is completed and how best to embed this learning in the course. The paper secondly outlines an assessment strategy that illustrates how an assessment approach that integrates UDL principles could be implemented in practice; the use of formative and summative assessment, the distribution of the assessment across the module, and the mechanisms that can be used to provide students with feedback on their work. Although modules vary in content and structure, this paper seeks to provide insights relevant to educators and curriculum designers across all disciplines.

Integrating UDL into module design helps us as educators to meet diverse learning needs, improve accessibility to learning opportunities, and increase student success. UDL is focused on ensuring all students get a chance to learn in ways that work for them. As Rose and Meyer (2002) observe '*no single medium works for every learner, nor does it for every subject... To promote understanding of information, concepts, relationships, and ideas, it is critical to provide*

multiple ways for learners to approach them' (p.41). Understanding these principles allows us to align teaching with best practice and ensure that we are providing an inclusive learning environment that works for all students in an increasingly diverse education landscape.

2. Module design.

The aim of a UDL approach to curriculum design is an integrated course that is constructively aligned with the outcomes of the module and UDL principles. Historically, research on inclusive assessment has focused on accommodations, changing ways in which assessment is administered to particular students to make it more accessible (Niebling & Elliott, 2005). The UDL framework focuses on how content is presented rather than the content itself, to create a more inclusive and effective learning environment with a range of optional assessment formats for every student depending on their preference (CAST, 2021). Fink encourages instructors to create learning goals based on his taxonomy of significant learning rather than relying on a content-driven method of course design (Fink, 2003). The goal then is firstly to decrease the emphasis on course content and foundational knowledge, and secondly, to increase the emphasis on active learning. This moves teaching beyond an instructional approach to uncover the hegemonic assumptions and practices '*that frame how we work*' (Brookfield, 2017, p.30) and engage learners via multiple teaching formats that allow every student to maximise their opportunities for success.

2.1 Situational factors.

Although, as educators, we are often working with a fixed set of learning outcomes, Fink's integrated course design provides a means for instructors to integrate student's situational factors into the course's learning goals, activities, and assessments. Understanding our learners helps us as teachers to better design instruction and materials that provide students with significant learning experiences. Situational factors include the specific context of the teaching and learning situation (course size, level, format, frequency), external expectations (requirements for accreditation), the nature of the subject, characteristics of the learner and characteristics of the teacher.

2.2 Identify important learning goals.

Learning goals are the intended purposes and desired outcomes of a particular course, which

identify the knowledge, skills, and capacities a student in that class should achieve by the end of their course. Hattie (2011, p. 130) maintains that '*having clear intentions and success criteria*' is one of the key strategies for improving student achievement in higher education. Moreover, being transparent about how and why students are learning in particular ways has been found to increase students' confidence, sense of belonging, and retention, this is particularly beneficial for first-generation, low-income, and underrepresented students (Winkelmes et al. 2016). The '*Backwards Course Design process*' idea of designing from the '*end*' of the learning process to the '*beginning*' offers a useful starting point as developing learning goals first makes it easier to integrate course activities that foster the principles of UDL in curriculum design (Fink, 2003).

2.3 Appropriate assessment procedures.

Assessment is an integral part of instruction, as it determines whether the goals of the course are being met and plays a key role in driving and influencing students' learning (Brown & Race, 2012). Fink's (2003) taxonomy provides the structure for assessing both course content and higher order thinking in six taxa; foundational knowledge, application, integration, human dimension, caring and learning how to learn. Fink encourages instructors to create learning goals based on this taxonomy of significant learning rather than relying on a content-driven method of course design (Fink, 2003) and this encourages us to explore new ways of knowing and representation.

In relation to continuous assessment, assessments can be sequenced from lower-order (foundational knowledge) to higher-order (learning to learn) in line with Fink's taxonomy. The principles of constructive alignment can be utilised to create meaningful learning activities that focus the learner on achieving intended learning outcomes. Students can be offered multiple means of expression for assessment, both in terms of the topic they engage with and the way in which they express and represent their engagement. This maximises the opportunity for each student to achieve the learning outcomes. Moreover, offering students opportunities for autonomy, such as choices around how they will engage with material or express their learning, is an empowering strategy, encouraging students to make decisions that matter about their assessments.

Continuous assessment is not always an option when working within the confines of course requirements. Where it is possible, in relation to implementing the principles of UDL, this paper

considers continuous assessment the most appropriate way of assessing a course for the following reasons:

Firstly, short assessments offer a low-stake approach that minimizes student apprehension. Low-stake assessments mean students are more likely to engage creatively, employing multiple means of expression in their responses. Short and frequent assessments also open lines of communication between students and their instructors and may increase students' willingness to ask for help as they prepare for higher stake assessments.

Secondly, the range of assessments possible with continuous assessment allows educators the opportunity to provide multiple means of engagement through forward-looking assessments that foster deep learning and integrate real life context into student assignments, discussions, and exercises. They also allow enable students to broaden their knowledge and deepen their critical understanding of key concepts on the course.

Finally, this approach allows educators to give students a realistic idea of their performance early in the term, enabling us to troubleshoot where needed and vary our means of representation to respond to learners needs. This increases their chances of achieving the learning outcomes and performing well in the final longer assessment as they have an opportunity to improve their performance before the awarding of a final grade at the end of term.

This approach aligns with the findings of McMahon and Thakore (2006) who found that continuous assessment led to greater standardisation, transparency and coherency alongside increased criticality and depth in student work and more effective evaluation. As Biggs (2014) observes, these benefits are not inherent in the outcomes-based model itself but apply when constructive alignment is the organising principle.

2.4 Appropriate teaching and learning activities.

A UDL approach requires educators to encompass a range of teaching and learning activities to help students achieve the learning outcomes of the module. Minton (1991) suggests that activities can be classified based on levels of control and this teaching and learning strategy aims to integrate teacher controlled, student controlled and shared control activities in a

balanced format. Learning can be facilitating by modelling and scaffolding in lectures, allowing students time to ask questions and receive clarifications. In tutorials, students practice applying these skills together, and then independently in guided study to provide a balanced strategy of dependent, interdependent, and independent learning.

2.4.1 Lectures.

In lectures, teaching is primarily in the form of direct instruction. Lectures are an efficient means of disseminating what Fink refers to as foundational knowledge which includes all the content, ideas, and information that you want your students to know at the end of the semester, and help students easily acquire knowledge of terms, basic facts, and simple concepts (Bligh, 2000). While lectures do not necessarily prioritise active learning, the demands of the subject have also to be considered (Roger & Horrocks, 2010) and there are elements of every course of study that are less experiential and require the foregrounding of foundational knowledge.

Lectures can also provide a way to model attitudes and behaviours the instructor values, such as careful weighing of evidence, presentation of argument and counterargument, and demonstration of how the subject has personal meaning. The key challenge of a lecture is the sheer volume of material that is covered in a single session. Varying our means of representation is one way to balance this for students with visuals, like PowerPoint, to help students conceptualise and encode material, and lecture guidance documents, like handouts, to make the lecture easier to follow and understand. The guidance document can include the lecture agenda, key definitions, and spaces for note taking, plus targeted questions that ask students to apply, compare and contrast, elaborate, or make connections. This focuses students' efforts on higher-order thinking (Goals, 2018) and makes learning more accessible for every student.

2.4.2 Tutorials.

Tutorials are an ideal space to prioritise multiple means of engagement. Bonwell and Eison (1991) describe active learning as '*involving students in doing things and thinking about the things they are doing*'. One way of fostering this engagement is with literature circles. Literature circle groups are typically comprised of four to six students, with each member assigned a role in advance that ensures balanced participation and equal opportunities for sharing ideas, expressing interpretations of texts, and responding to the contributions of others in the group (Whitaker, 2012). Literature circles incorporate the taxa of Application and Integration; the

Application taxon encompasses critical, creative, and practical thinking, skill sets which can be fostered through experiential learning tasks like creative writing exercises, the Integration taxon includes connecting different ideas that might appear in different disciplines. Literature circles foster reflective dialogue; they play a key role in developing critical thinking skills and deepening understanding in learners and their use draws heavily on the scaffolding teaching strategy espoused by Vygotsky as well as ZPD theory. Vygotsky (1978) argues that the zone of proximal development can be determined by comparing what a student can do alone and what she can do during '*problem solving under adult guidance or in collaboration with more capable peers*' (p.86).

Engaging in dialogue in which multiple perspectives on texts are invited can provide students with opportunities to examine individual interpretation in conversation with others. In the socio-cultural approach, thinking originates in such collaborative dialogues, which are internalised as '*inner speech*' enabling learners to do later in '*verbal thought*' what they could at first only do in conversation with supportive adults or more knowledgeable peers (Vygotsky, 1978). Vygotsky applied this idea to literature teaching in *Psychology of Art* (1971), where he argues that the effects of literature excite the individual reader aesthetically, but that the teacher must aim, further, to form reflective consciousness through '*intelligent social activity*' that extends the '*narrow sphere of individual perception*' (1971, p.41). Constructivist literature study, such as that facilitated by literature circles, can shape students' knowing and thinking and play a significant role in developing students' critical faculties.

2.4.3 Independent guided study.

Independent study forms a critical part of students' development as autonomous learners and accounts for a significant amount of the total time spent on a module. Students are expected to undertake independent guided study as part of their learning which can include reading, researching, academic writing and web-based activities depending on their course of study. Research shows that students are aware that they are responsible for much of their learning throughout their course (Ayish & Devici, 2019). However, they may not understand what form this takes, nor may they have all the skills that they need to become effective independent learners. This is especially the case for students who are new to higher education. School leavers will be used to more structured learning and are likely to view their independent learning at university as equivalent to '*homework*'. Students who have been away from education for

some time may be very uncertain about what is expected of them. A 2021 HEA study found that changes to the models of education delivery can assist these students, and teaching and learning approaches have the potential to impact on student participation and student success (HEA, 2021).

Independent study needs to be '*guided*' to help students make the equestrian leap from dependent to independent learning. This guidance may take the form of:

- Providing structure in relation to representation – Templates, and guidance on tasks that will be effective use of time for example, graphic organizers, persuasion maps;
- Linking independent learning to class engagement – Ensure that independent learning tasks relate to work undertaken in taught sessions, for example, a Kahoot based on material covered in lectures, a Padlet response to a tutorial task;
- Ensuring that students have the requisite skills for appropriate expression – Writing Skills, IT skills. This may involve directing students to student learning supports within the learning environment or online.

This focus on independent learning supports Fink's Learning How to Learn taxon which provides the ability for long-term learning by teaching students to become self-directed learners. The combination of teaching and learning activities should constructively align with the aims and learning outcomes of the course, and provide multiple means of engagement, representation, and expression. Activities will ideally reinforce material covered in lectures and ensure students' achieve the learning outcomes and foster a learner-centred approach guided by Tyler's assertion that learning takes place through the active behaviour of the student (Tyler, 1949, p.63).

2.5 Integration of primary components.

Integration is the cornerstone of good module design. Integration refers to the deliberate alignment of the primary components of learning namely foundational knowledge, application, integration, the human dimension, caring, and learning how to learn so that learning outcomes, teaching activities, and assessment mutually reinforce one another. The goal is to integrate the primary components in a way that maximises the conditions for quality learning by ensuring alignment throughout the process, from the forming of learning outcomes to the choice of

teaching methods to assessment. A constructive alignment approach highlights the importance of this coherence:

'The fundamental principle of constructive alignment is that a good teaching system aligns teaching method and assessment to the learning activities stated in the objectives so that all aspects of this system are in accord in supporting appropriate student learning'.

(Biggs, 1999, p. 25)

Alignment in a lesson plan ensures that all the components are working together to support student success. Assessments reveal how well students have grasped the learning objectives through the instructional activities provided by the lecturer. When assessments are misaligned with learning objectives or instructional strategies, this can undermine both student motivation and learning. Therefore, assessments, learning objectives, and instructional strategies need to be closely aligned so that they support and reinforce one another. A well-designed module must involve the following elements and emphasize their inter-relatedness to the learners; defining the learning outcomes, choosing appropriate teaching and learning activities that will lead to the attainment of outcomes, and assessing student learning outcomes. By aligning learning outcomes and assessment students can focus on the learning objective and demonstrate the specific skill required during evaluations; feedback given to students is related to the success criteria associated with the specific learning goal, which maximises their ability to achieve learning outcomes and course success.

The challenges in the design process include ensuring the learning needs of all students are represented in the assessment strategy, and that assessments foster the principles of UDL, namely, engagement, expression, and representation within a constructively aligned design. Understanding these principles enables us, as educators, to align teaching with best practice and interrogate our practice to ensure that we provide an inclusive learning environment that works for all students in an increasingly diverse education landscape, respects the individual learning needs of students and allows them to maximize their opportunities for success.

Alignment in teaching stems from the idea of '*backwards planning*,' or beginning with the end goal and working backwards from that point. Both students and teachers will experience greater

success if they have clarity of direction. Working through Fink's questions for formulating significant learning goals helps to prioritise 'learning how to learn' goals and focus on forward-looking assessments rather than becoming fixed on the transmission of foundational knowledge (Fink et al., 2009).

3. Assessment strategy.

Assessment is an integral part of instruction, as it determines whether the intended learning outcomes of the course are being achieved. It is vital therefore, that the design strategy aligns with these learning outcomes and is reinforced through the instructional activities included in the course. If well designed, assessment and resulting feedback can contribute to and improve the learning process (Hattie & Timperley, 2007). If designed poorly, assessment can hinder learning by causing anxiety, low self-esteem, low motivation for learning, and inappropriate study behaviours such as surface approaches to learning. Assessment design at third level frequently focuses on the grading purpose, without considering how to support student learning or how to build the capacity of students to exercise critical judgements about their own work (Bearman et al., 2014). A well-designed assessment approach can incorporate summative and formative assessment that support the principles of UDL and are aligned with the learning outcomes and instructional strategies of a course of study.

3.1 Summative assessment approach.

Summative assessment is used to evaluate student learning at the end of the instructional process. The purpose is to summarise the students' achievements and to determine whether and to what degree the students have demonstrated understanding of that learning by comparing it against the specified learning outcomes. Assessments should be clearly aligned and explicitly linked to learning outcomes. While there is undoubtedly value in the use of formative assessment to assess student progress and support student learning, for most students, assessment is the primary driver of student learning and assignments that have no impact on a student's final grade often elicit little to no participation from students (Wolf & Smith, 1995). To counter this, the introduction of low stakes assessments allows students to receive fidelity feedback and improve their performance as they progress.

Involving students in assessment research aligns with the broader shift towards student-centred

learning and current research highlights the positive impact choice in assessments has on students' learning (O'Neill, 2011), with many students demonstrating greater student engagement and feelings of empowerment as a result (O'Neill & Padden, 2021; Reason & Ward, 2022). As Flood and Banks observe '*for a curriculum to be inclusive, it needs to incorporate a variety of options for students to demonstrate their learning and capacity as there is no one-size-fits-all method*' (2021, p.3). The implementation of UDL principles into summative assessment by allowing students multiple means of expression in terms of topic and format, for example the option of individual or group assessments, oral or written submissions, answering a technical question or a non-technical question, gives students autonomy over their learning decisions while satisfying the learning requirements of the course.

3.2 Formative assessment approaches.

Assessment is formative when either formal or informal procedures are used to gather evidence of learning during the learning process and used to adapt teaching to meet student needs. This enables teachers and students to collect information about student progress, and to suggest adjustments to the teacher's approach to instruction and the student's approach to learning where appropriate.

Formative assessment particularly focuses on the student having an active role in his/her learning and multiple means of engagement and representation can be embedded in tutorials to support active learning, including Kahoot quizzes, think-pair-share, one-minute papers and literature circle discussions to increase student motivation and enhance student engagement in class. Students can also be given several opportunities throughout the term to extend the group activities carried out in tutorials, for example by submitting written responses provided on Padlet or oral responses provided on Voice Thread. These multiple forms of expression serve as scaffolding to support student learning as they work on the skills needed to succeed in the summative assessments, and they will give educators an opportunity to see where students are in their learning process and provide critical feedback to help them progress their learning.

3.3 Distribution of assessment.

Frequent distribution of assessments benefits students by modelling appropriate study behaviours, for example, studying regularly, keeping up with the material, and by extrinsically motivating them with graded frequent assessments that count towards the final grade. Research

shows that regular testing boosts metacognitive monitoring abilities (Niedwiecki, 2012) and Lemanski (2011) also found that most students value frequent assessments and welcome the extrinsic motivation to study regularly.

Frequent assessments allow educators to track student progress and use a variety of instructional strategies to achieve the learning outcomes in line with UDL best practice guidelines. This approach to assessment benefits students because it enables them to learn more effectively by giving them feedback on their performance and how it can be improved or maintained before their final assessment. Indeed, a meta-analysis by Kulik (1991) showed that frequent assessments can motivate students to study more regularly, resulting in reduced cramming and increased final grades, frequent assessments can also lower anxiety increase self-esteem and promote deep learning.

3.4 Providing student feedback.

Feedback is perhaps the most important dimension of assessment as it motivates students, improves performance, and encourages student autonomy. Giving feedback is an important skill for lecturers in higher education too and has a major influence on the quality of the students' learning process (Hattie & Timperley, 2007). '*As the students seek to learn how to perform well, teachers need to provide feedback that has "FIDeLity" characteristics*' (Fink, 2003, p.14) and one mechanism that can be used to provide students with effective feedback on their work is the feedback system outlined by Fink. The goal is to provide constant and clear feedback on students' work while taking into consideration empathy towards students using the following structure:

- Frequent: Give feedback daily, weekly, or as frequently as possible.
- Immediate: Get the feedback to students as soon as possible.
- Discriminating: Make clear what the difference is between poor, acceptable, and exceptional work.
- Loving: Be empathetic in the way you deliver your feedback.

Continuous assessment responds to the frequent and immediate suggestions provided by Fink. Students' ability to metacognize (to monitor, query, evaluate, and guide their learning in an intentional and mindful way) is strongly correlated with effective learning (Niedwiecki, 2012). For students to exercise metacognition, they must know whether their past learning efforts were

successful, and if not, how to proceed. If feedback is infrequent, then metacognition becomes fragmented and loses direction. If feedback is not immediate, the time lag may be sufficiently great that students no longer remember well enough the techniques they used to complete the tasks in question, making it harder for them to self-diagnose their efforts.

General feedback can be provided in tutorials, addressing common errors and how to resolve them. Model answers, that is, what constitutes a good response and what constitutes a poor response can also be provided and discussed in tutorials and serves as a useful template for engagement with students in relation to what is expected of them. Written individual feedback can be made available in person to students but realistically, depending on the timeframe and number of students, it is not always possible to provide face-to-face feedback and that is an ongoing challenge. Feedback can also be provided online using Turnitin or a similar facility, or in audio format. Office hours are an attempt to address this challenge by providing a time and space where students can come during stipulated hours, discuss their progress, and gain further feedback. This is critical to improving learning as it both influences students' motivation to learn and their ability to do so.

Each of the assessments should target the critical areas for improvement through discriminating feedback. This is important because if feedback is not discriminating, students cannot pinpoint what elements of their previous efforts would need to be improved and/or how those efforts would need to be improved. By '*loving*' Fink refers to the spirit in which the feedback is expressed, that is wanting your students to improve rather than wanting to demoralize or discourage their efforts. The objective is therefore to provide direct, constructive, and encouraging feedback throughout the semester that highlight what students are doing well first before gracefully outlining what they could do better. Feedback is vital in facilitating students' development as independent learners to monitor, evaluate, and regulate their own learning and the impact of feedback on future practice and the development of students' learning will play an important part in shaping their learning futures (Ferguson, 2011).

4. Conclusion.

Assessment is, as Race (2014) asserts, the major driver for student learning; it is therefore essential that our assessments work well. One way to achieve this goal is to create an effective assessment framework that aligns with the learning outcomes and instructional activities of the

course design, and allows students multiple means of engagement, representation, and expression. This approach to module assessment is modelled on Fink's model of instructional design, specifically, his guidance in the initial design phase on formulating appropriate feedback and assessment procedures, and on integrating the primary components of learning outcomes, instructional strategies, and assessments.

The key challenge that will undoubtedly arise in the implementation of the assessment approach proposed is the burden of correcting assessments and providing frequent, high-quality feedback over the course of the term whilst balancing teaching and research commitments. As Race (2015) observes 'we need a richer mix of high-quality assessment formats, and we also need to reduce the overall burden of assessment for ourselves and for our students' (p.27). Further issues include time and resource constraints, a lack of institutional support and a lack of understanding within educational institutions (Hills et al., 2022). This paper highlights the need for institution wide initiatives to encourage broader implementation of UDL practices, and transform institutional commitment to access and diversity into systemic change (Kelly et al., 2023).

In addressing the challenges of assessment, Race has offered some practical suggestions, notably; to keep learning outcomes in sight while compiling assessments, write shorter, targeted assessments, and work out a tight marking scheme. In relation to reducing the burden on students, providing an assessment scheme at the beginning of term alongside a detailed marking scheme, transparent criteria and a sample answer with feedback will enable students to manage their time accordingly. All these elements require considerable time and energy but in the long term, providing students with a grading rubric along with the assignment gives them a roadmap for success. It also saves us time as educators by streamlining the grading process and minimizing the crafting of individualized feedback. This curriculum design and assessment approach provides an integrated course design that offers a structured way for learners to meet their goals, and educators to create both significant and meaningful learning experiences for students in line with UDL principles.

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