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Setting the scene

Imagine you have to plan and cook a meal for a group of visiting teachers from across the EU. You have no information about them at all, so you go ahead and plan an Irish-style dinner with: Dublin Bay scallops *au beurre,* Irish Beef and Guinness pie, Lemon Torte and Raspberry Coulis.

It sounds lovely but then your guests arrive and one tells you she is a vegetarian, another that he is gluten intolerant and another that she is allergic to dairy products. So there goes your menu and you are left frantically searching around the kitchen trying to find last-minute alternatives, and decrying all these food fads that have totally upset your dinner plans.

Would it not have been easier to have designed the menu with these food intolerances in mind and built in alternative menu choices on the assumption that in a group of 20 people someone will have a food intolerance?

Diversity inevitable in every group of learners

The same principles that a dinner host might apply in planning a dinner menu may be applied in education. After all in everyday life we meet diversity all the time, life is diverse, out children are all different, the students are all different and becoming more so. Students come from widely different cultural, religious and socioeconomic backgrounds, exhibit a wide range of learning styles, are of different ages with more adults returning to learning and, of course, many of these students have some form of disability. Furthermore, each student will have a different bundle of interests, likes and dislikes and each will have a different level of prior subject knowledge. So how do we deal with differences, ours and theirs? In many respects, we teach them as if they were all the same, offering them the same text books and other learning resources, expect the same rate of progression through the course, and assess their learning achievements in the same way. Recognising this diversity has obvious implications for all aspects of teaching, learning and assessment and this is what Universal Design for Learning (UDL) addresses.

Historical approaches to dealing with diversity

In the past students with a disability were excluded from education AHEAD 2013/14 but increasingly they expect to go to education and gain a qualification. Indeed, these learners have the same legal rights as learners without a disability to take part in all aspects of the courses they enter. The question

is: How do we design learning in order to ensure that the experience is successful for all students irrespective of any disability or other need they may have? AHEAD data suggests that in higher education[1] students with disabilities remain very under-represented on many courses.

Part of the reason for this under-representation is that traditionally education has designed for the average student, the student who has no problems dealing with the demands of reading and writing academically in a text-based learning environment. The reality, however, is that no student is average: each student learns differently, each has different kinds of Intelligence, some excel at sport, some at science, some with people, others in art or music, some will have perfect pitch while others cannot sing a note. The challenge for many talented students is that they are expected to demonstrate their education and training achievements through one medium - writing. So the student with a text disability, such as dyslexia, is at a disadvantage because while s/he may excel at science, or art or engineering, nevertheless they depend on textbooks to learn and then on a written examination to demonstrate what they have learned.

It has been estimated that the proportion of learners in the general school population with some form of special education need is up to 25 percent[2] of a year cohort. Given the profile of students accessing education, it is not unreasonable to conclude that the proportion of learners with different educational needs is significantly higher than this. Even if we wished to, the financial costs of alternative education and training provision for these learners is not feasible. Therefore, another approach is required.

Up until now the inclusion of students with disability has been a Retro-Fit model. In other words, the disability specialist who would assess the needs of the student and then add on supports, such as assistive technology, to what was going on in the classroom. This retro-fit approach expects the student to adapt to the standard system without any obligation on the academic environment to change their teaching style**.** UDL is different. It first looks at all of the potential students and the diversity of their learning needs within the context of the mainstream learning environment which includes the lecture hall, the tutorial, laboratory, work placement. Then it designs the learning environment including the tasks, the materials and the technology anticipating the learning needs to ensure that all students can learn to the maximum extent possible. For example, the student with dyslexia who is good at science can learn better by doing experiments, viewing You Tube clips or using technology to listen to audio books rather than having to depend solely on reading in order to learn.

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[1] http://www.ahead.ie/userfiles/files/Participation/PARTICIPATION%202014.pdf - (AHEAD, 2013, p. 16)

[2] http://ncse.ie/wp-content/uploads/2014/11/NCSE-Educational-Outcomes-Children-with-SEN.pdf - see p. V

UDL and its Origins

The UDL model was pioneered in the 1990s by Dr David Rose at the Center for Applied Special Technology (CAST) and was inspired by the Universal Design (UD) movement in architecture and product development that emerged in the states. It applies the UD concept to the learning environment. Recognising that each individual learns uniquely, even where s/he does not have what might be defined as a special educational need, it posits[3] that all curricula should be intentionally designed (from concept stage and not as an add-on) and delivered in a way that:

- gives all learners an opportunity to acquire information and knowledge in a variety of ways
- engages (motivates) all learners by tapping into their interests, aptitudes and prior knowledge
- provides all learners with alternatives for demonstrating what they know

While Rose and his colleagues learned much from the principles of UD in Architecture and in the case of buildings and products, they recognised that the design of learning environments involves greater complexity and so they drew on the developments in the neurosciences and theories of progressive education in developing the UDL model.

In UDL the inclusion of students with disability is no longer seen simply as the job of the disability support service, but is the job of all teachers. In most subjects English is the communication medium and the student has to use written English both to learn and to demonstrate his/her learning achievements in examinations. This can present a significant barrier for dyslexic students who, for example, in science may be very good at the practical side do very poorly in a summative written examination. Operating in line with the UDL model, the teacher would assess the achievement of the learning outcomes using a variety of assessment instruments.

This might appear to entail a lot of additional work on the part of the teacher but once the preparatory planning is done and the requisite resources are designed into the curriculum and programme to deliver it, then the teaching should be more engaging and rewarding for all students and not just for the high fliers or the average student. Such a development might also be expected to make teaching a more rewarding activity.

Implementing the UDL model has obvious implications for the teacher. Clearly, teachers and tutors are key players as they have to plan their lessons in a way that ensures that all learners:

- can acquire information and knowledge in a variety of ways and are not confined to hearing or reading,

[3] Rose et al (2014) & Rose et Al (2002)

- are engaged (motivated) by the teaching tapping into their interests, aptitudes and prior knowledge.
- are provided with alternatives for demonstrating their education and training achievements (what they know and what they can do)

This inevitably requires teachers to move away from being 'sages on the stage' to what King[4] termed 'guides on the side'. This catering to individual difference, however, must be implemented while maintaining the academic integrity of the course. The fact that learners acquire the information and knowledge integral to undertaking a course in other than written format, or that they demonstrate their achievements (learning outcomes) through other than written examinations, should not mean that they complete the course successfully without explicitly demonstrating that they have met all required learning outcomes. Clearly, developing the capacity of teachers to design and deliver courses in accordance with the UDL model has obvious implications for the continuous professional development of those teaching in the education and training sectors.

Until relatively recently, outside of architecture, UD was perceived as relevant only to people with disabilities. But UDL looks at the bigger picture and considers the extent to which the classroom context creates the disability. The capacity of anyone to learn, even where s/he does not have a disability, is not fixed. It can be greatly enhanced by the appropriate use of technology. For example, if notes are available in audio format rather just in text format, these notes can also be accessed in audio format by those who are not dyslexic and this can enhance their learning. The learning of blind people can be hugely facilitated by making notes available on line or in braille. So, in a classroom where a variety of teaching and learning formats are deployed disability can become invisible and every student has the chance to learn better.

Principles Underpinning UDL in Practice?

UDL is still very much in the process of development and refinement and there are a number of different approaches and models emerging, such as the 9 Principles for Universal design for Instructions proposed by Joan McGuire of the University of Connecticut in *Inclusive College Teaching: Universal Design for Instruction and Diverse Learners* (2011).

However this writer took the model outlined by David Rose and explored through a number of workshops with staff in higher education how it would work in the context of Irish Higher Education– see **Table 1** below.

[4] See King (1993) p, 30

Table 1. Principles of Universal Design for Learning

1. Multiple means of teaching	
Learning is designed to accommodate a wide range of individual students with different abilities. Teaching is designed to be flexible and varied incorporating a choice of means to reach learning outcomes including the use of technology that is accessible for students with disabilities.	• Comprehensive class notes provided online so they may be accessed in the same manner by all students, regardless of learning ability, for example, a blind student has text to speech software such as JAWS to read the text, thus enabling him/her to learn at the same time and the same rate as other students. • . A variety of instructional methods (lecture with a visual outline, group activities, use of stories, or web-board based discussions) are employed to provide different ways of learning and experiencing knowledge. • Teachers have an understanding of the impact of the individual student's disability and have given consideration to the different ways in which students with particular disabilities can do things. For example, the student with dyslexia may avail of audio rather than written instructions. • Multimedia, tape recorders and live scribe pens to record notes are standard classroom tools. • Remember, the student is the expert in his/her impairment and may have a different way of doing a task, for example, if hearing is impaired s/he may lip read so face-to-face communication is important. • It is important not to assume that a student with a disability cannot complete a task but to ask the student how he/she can do it. After all, Beethoven wrote his famous ninth symphony when he was virtually totally deaf.
Multiple means of Engagement	
Learning is designed to engage the student, to take account of their starting points, interests, needs within the context of the course	• Inclusion is defined by Claiborne (2010), 'as the participation by all students in a larger society, as an equitable aspect of a just society...' It is critical for learning that the students feel that they belong on the course and in the college. If students are made to feel that they are causing problems and a burden their educational experience will be negatively affected. • The relationship between the teacher and the students is important; teachers know students' names and incorporate motivational strategies into their teaching to encourage student progress, and individual student performance is acknowledged • There is an induction course prior to starting, to welcome the student and to clearly outline the learning outcomes and programme. • There is a handbook available to guide the students through their assignments and to provide them with glossary of new

	terms relevant to the course, particularly in medicine, science and technology. • The use of checklists and templates will enhance formative learning enabling the student to think ahead, anticipate and practice. • Instructions are given clearly in a number of formats, oral, written, electronics and storyboard. • Imaginative means can be used to get the attention of the students • Communication is fostered among students both in and out of class by structuring study groups, discussion groups, e-mail lists, or chat rooms.
• Multiple means of demonstrating skill and knowledge	
Inclusive assessment practices can be done by mapping a diversity of assessment across a programme. This allows students to have some choice over the course of a full programme, designed by staff into the learning experience (McNulty (2011)	• The course is designed to provide a choice of assessment instruments that enable the student to demonstrate they have reached the learning outcomes. This would include designing the course assessments to include a choice of assessment instruments such as designing academic posters, assignments, group activities, written exams, presentations and oral examinations where appropriate. • The teacher realises that practice makes perfect and the student is given the opportunity to use the formative learning process to meet performance criteria. • It is acknowledged that learners don't necessarily get it right the first time and that getting things wrong is very much part of getting them right. • Feedback is critical here to provide the student with constructive and non-judgemental feedback on performance throughout a course. This principle is about the creation of a positive culture of reflective learning and constructive feedback that actively supports learning. • Long-term course projects are structured so that students have the option of turning in individual project components separately for constructive feedback and for integration into the final project. • There is provision for online 'practice' exercises that supplement classroom instruction.

Conclusion

More than anything else, UDL is about developing truly inclusive education provision. There is a significant increase in the diversity of student in higher education, including 6% of the student population who have a disability. Therefore it is important to design a system of teaching and learning that acknowledges that every student is different and that anticipates and includes different learning requirements.

While it is acknowledged that the experiences of students with disability accessing education has improved dramatically in recent years, it is nevertheless true that they remain under-represented in higher education. One of the main barriers is that provision for students with disabilities is still based on the retro-fit approach where the entitlement to the additional support involves considerable extra effort on the part of the learner, the further education provider and the teacher. Teaching and learning is changing however and the proactivity and commitment of disability support staff, the Teaching and Learning forum as well as teachers and tutors on the ground has resulted in the development of a body of research and good practice that not only works to improve the educational experience of students with disabilities but, works for all students in higher education

UDL is a model that builds in a sufficient range of teaching and learning approaches into every course at the design phase so that the need for add-on supports and accommodations for students with disabilities is significantly reduced. Consequently, all learners irrespective of whether or not they have a disability receive instruction and learn in a wide range of formats. This means that the learning styles of all learners are much more effectively accommodated than is the case currently.

Of course the implementation of UDL right across education has cost implications. But these costs far outweigh the high cost of drop outs on a social as well as a financial basis. While it is appreciated that UDL is a relatively new idea in Irish education, it is essentially about accelerating the development and implementation of innovative and creative teaching practice that is already found in every college and course across the higher education sector. On this basis, UDL provides a model for Inclusion of a diversity of students into the future.

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