Universal Design for Learning, Autism & Undergraduate Nursing Education.

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Abstract.

The universal design for learning (UDL) framework is a means to ensure that there are equal opportunities to learn for all. This framework focuses on universal design under the headings of multiple means of representation, action/expression and engagement. The nature of undergraduate nursing education is unique insofar as it combines both theoretical instruction with clinical placements. Therefore, the embedding of the UDL framework into these curricula is deserving of particular attention. This paper discusses the considerations of the UDL framework for students with disabilities, in particular, those who are autistic, in professionally accredited programmes, examines their experience of transitioning to higher education, the legislative framework in place to prevent discrimination in the Republic of Ireland and finally, discusses the practical applications of the UDL framework in undergraduate nursing education.

Keywords: Education; Neurodiversity; Nursing; UDL.

1. Introduction.

Pre-registration nursing courses in the Republic of Ireland take the form of a 4 year, level 8 Bachelor's in Science (Honours) degree. Such pre-registration courses are offered in general nursing, mental health nursing, intellectual disability nursing, midwifery and children's and general nursing (integrated). Students complete a total of 144 weeks instruction, split across 63 weeks of theory, 45 of supernumerary clinical placement and finally 36 of internship (Nursing and Midwifery Board of Ireland (NMBI), 2023). A total of 6 domains of competency are listed, with accompanying indicators in which the student must achieve proficiency as appropriate to their stage of training. These domains are highlighted in Figure 1.

Figure 1: 6 Domains of Practice for Nursing Registration Programmes (NMBI, 2023).

Domain 1	Professional values and the conduct of the nurse competencies
Domain 2	Nursing practice and clinical decision-making competencies
Domain 3	Knowledge and cognitive competencies
Domain 4	Communication and interpersonal competencies
Domain 5	Leadership, management and team competencies
Domain 6	Development of leadership and professional scholarship competencies.

It is well established that nursing is a demanding profession, which bears a physical, psychological and emotional weight (Turner and McCarthy, 2017). Notwithstanding these demands, the sense of personal satisfaction and reward from the profession is undeniable. However, the challenges faced, and strengths experienced by students with disabilities may not necessarily resonate with those of the majority. Moreover, the needs of individuals who fall under the heading of neurodiversity, for example, those who are autistic, vary greatly and should be assessed both carefully and individually to ensure the best support for the student. This article explores the considerations for neurodiverse individuals in professionally accredited programmes, in this instance, nursing, examines the experience of transitioning to higher education, the legislative framework surrounding disabilities and education and finally, highlights the importance of the application of the Universal Design for Learning (UDL) framework in heightening accessibility for all.

2. Transitioning to Higher Education.

Diagnostic criterion B2, *"insistence on sameness, inflexible adherence to routines...e.g., extreme distress at small changes, difficulties with transitions..."* described in the Diagnostic and Statistical Manual of Mental Disorders 5 (American Psychiatric Association, 2013) is perspicuously reflective of one of the difficulties autistic individuals face. A systematic review by Hadley and Mapondera (2023) reviewed a number of challenging aspects that the transition to higher education may present. These included; the differences between second level and third level education, for example, second level routines being highly structured and third level being somewhat amorphous; faculty and parents directing disability needs in second level and the student having to direct and advocate for their own needs in third level and finally, the

compulsory obligation of second level institutions to meet most additional needs, while third level institutes are only expected to implement "*reasonable*" accommodations. It has been demonstrated that very clear transition planning and the setting of goals for same are crucial for a successful transition (Alverson, Lindstrom & Hirano, 2019).

Interventions such a pre-college transition programme, although needing further investigation, have been shown to be efficacious for both students, and their parents, who described such a programme as a means to '*see*' their young person becoming a student (Doyle, Gleeson & Treanor, 2017). Notwithstanding the anxiety that commencing third level education may present, it should be noted that the completion of a third level programme has been associated with positive and optimistic feelings. In a qualitative exploration by Vincent (2019), young people described feeling '*ready to go into the world*' and a '*mix of feeling quite sad to leave but excited*'. Such experiences highlight the need to continue to develop and bolster efforts to support young neurodiverse individuals to both enter and complete higher education.

3. Neurodiverse Individuals in Higher Education.

There has been a 273% rise in the number of students with disabilities registering with support services in higher education institutions in the past 13 years with 1,629 undergraduate students with Asperger's/Autism being registered with such services in the 2021/22 academic year (Healy and Ryder, 2023). However, this number is only reflective of students who firstly, disclosed being autistic, and secondly, have a formal diagnosis. Barriers to a disclosure alone can present significant difficulties for an autistic individual receiving the necessary for them to thrive. Similarly, it is well documented that accession to diagnostic and support services in the Republic of Ireland is not well aligned with the current recommendations. The National Institute of Clinical Excellence (NICE) recommends that no one under 19 should wait longer than three months from the point of referral to first contact with a service (NICE, 2017). However, a recent report by As I am (2023), revealed that of 70% of children not in receiving support in Ireland, 68% were on waiting lists.

Taking account of the individuals who may be in higher education, who are seeking, but are awaiting formal assessment for an autism diagnosis, and those who have learned to '*mask*' their autistic traits throughout life; the successful implementation of the universal design for learning

framework is paramount to ensure the wellbeing and success of neurodiverse individuals in third level education.

3.1 Examples of the implementation of the UDL Framework & reasonable adjustments.

Clinical Placement Adaptations & Reasonable Adjustments

- Rest breaks may be necessary for students to self-regulate.
- Flexibility in the scheduling of clinical placement hours may be needed to allow students sufficient time to decompress after clinical placement and to allow for the often high levels of masking that occur while on clinical placement.
- Assistive technology for clinical documentation, for example the use of a tablet which could be used to input clinical notes, which can then be printed and added to a patient's file.
- Placement locations may need to be considered, for example, some autistic students may experience profound exhaustion as a result of masking behaviours, so placements closer to their residence may be more suitable.

Strategies for Clinical Educators

- Varied assessment measures of clinical skills, aligning with principle 4.2 (Multiple means of action and expression).
- The demonstration and practising of clinical skills in a controlled simulation environment before students enter the clinical area.
- The scheduling of a pre-placement visit may be beneficial in reducing a student's anxiety before entering a new clinical area and providing an opportunity for disclosure of the student's disability to the necessary parties, e.g. their preceptor, before the commencement of the placement.

3.2 Legislative background.

The Disability Act (2005), ensures that individuals with disabilities have equality in relation to educational opportunities. Consequently, higher education institutions (HEIs) and healthcare organisations may not discriminate against students on grounds of disability when considering them for admission or access to a programme. Kotcherlakota, Stamler, Clark, and Howell (2024) describe nursing faculty perspectives on the implementation of the UDL guidelines as generally

positive, when the correct education and resources are provided to facilitate this. Indeed, Harris (2018) highlights the simplicity of the UDL framework as being very conducive towards a paradigm-shift towards it and greater inclusion. Coffman and Draper (2022) highlight that flexibility in terms of methods, materials and assessments is key. This does not mean that the prescribed educational and training standards are compromised or not fulfilled, but rather the conventional approaches to attaining such standards are adjusted to maximise the potential of student success.

4. Universal Design for Learning.

The universal design for learning framework is a means to ensure all individuals have equal opportunities to learn through the development of curricula that are accessible to all, including students with disabilities (CAST, 2018). Copious amounts of inter-disciplinary evidence were used in the generation of, and support the UDL framework. Perhaps most importantly however, variations to the main findings in such studies were afforded the same gravity as the mean. The three headings under which the guidelines are grouped; representation, action/expression and engagement are crucial in the developing educational policy and practice that are inclusive to all, including the neurodiverse. Moreover, within the context of nursing practice and education, there is evidence to support that nurses and nursing students with disabilities face discrimination (Neal-Boylan and Miller, 2020). To that extent, it is plausible that the implementation of the UDLs for all should help to safeguard against the possibility of discrimination or disadvantage as a result of a student having a disability. LaSala, Polyakova and Starnes-Ott (2020) discuss a number of barriers to the successful implementation of the UDLs in the context of distance or remote education, for example, motivating faculty to make their courses universally accessible and providing professional development to facilitate same; however, they assert that with the correct planning and resources, it is possible.

4.1 Multiple means of representation.

Representation in the context of the UDL guidelines is concerned with presenting content in multiple ways to facilitate the needs of different learning styles. Undergraduate nursing education is deserving of particular attention here, as while the theoretical, classroom learning is largely similar in terms of delivery to that of other undergraduate programmes, the acquisition of clinical skills and learning on clinical placement is somewhat unique to undergraduate health

and social care professionals. Guidelines 1 (*"Provide options for perception") and 2 ("Provide options for language, mathematical expression, and symbols"*) in the context of clinical practice placements necessitate consideration as, in contrast to the student attending their HEI, the clinical area is not primarily concerned with education, but rather, directly providing patient care. The utilisation of information and communication technology (ICT), for example, is useful here; as it is possible that the dissemination of information to students (for example, learning outcomes, induction packs, learning resources) in accessible digital formats would encourage their uptake and increase engagement with them.

In relation to practical skills instruction, both in the HEI and in the clinical areas, the utilisation of multiples means of representation is imperative in ensuring that key skills for practice are presented in ways conducive to engagement with different learning styles. For example, the administration of an intramuscular injection, a core clinical skill, can be presented in a number of ways to facilitate various "VARK" learning styles (Fleming, 1992), A video demonstrating the best evidence-based practice technique for visual/auditory learners, text-based procedure guidelines, for example, those contained within Lister, Hofland, Grafton and Wilson's (2021) *Royal Marsden Manual of Clinical Nursing Procedures*, available in both print and online format; and the facilitation of a skills instruction session for those with a kinaesthetic learning style and the opportunity to access equipment to further grasp the skill if needed.

In contrast to some of the challenges that the nature of nursing education presents for the implementation of UDLs, there are facets that lend themselves well to this. For example, guideline 3 (*"Provide options for comprehension"*) is ideally performed in the clinical environment when a student is undertaking a clinical skill on which they have received instruction and practice in their HEI, but are now performing in the healthcare setting under the supervision of their preceptor. While the student may have the theoretical knowledge to perform the clinical skill and grasp its' core steps, only by applying it in practice are comprehension, competence and confidence in performing the clinical skill achieved. Thus, the support of the preceptor is invaluable in ensuring that the student achieves proficiency here.

4.2 Multiple means of action and expression.

Similarly, guidelines 4 (*"Provide options for physical action"*) and 5 (*"Provide options for expression and communication"*) align well with the nature of nursing education. Clinical skills

instruction and students having the opportunity to provide care in the clinical areas are essential in the consolidation of the theoretical and practical knowledge required to undertake practice as a registered nurse. The UDL framework can be well integrated to the clinical context as the NMBI (2023) outline the overarching educational and practice requirements that must be achieved, but do not explicitly prescribe a single method by which an individual must practice. Halligan, Martyn, Pace, Pace and Gee (2019) discuss this in the context of undergraduate nursing education and assert that only when there is collaboration between the student, HEI and the clinical area, placing the learning needs of the student firmly alongside the professional standard that they must achieve can the most suitable environment be fostered.

A phenomenological study of autistic medical students by Shaw, Doherty and Anderson (2022) revealed challenges associated with being neurodiverse in medical education and that many participants were simply advised to '*take time out*' from their studies, as opposed to the implementation of reasonable adjustments in their learning environment. This is interesting, because ultimately, on return, the student will still be autistic. While deferring studies to a later time may be useful in instances of burnout or ill mental-health, it does not address the students' needs. Notwithstanding this, all participants described strengths associated with being autistic, supporting the assertion that autistic individuals can be assets to their respective professions, both in health and social care professions and further afield. The effective discussion, implementation and review of reasonable adjustments in relation to students on clinical placements facilitates guideline 6 (*"provide options for executive functions"*); where they are empowered to make a contribution, not in-spite of their differences, but rather perhaps, because of them.

4.3 Multiple means of engagement.

A mixed-methods case study of first year nursing students by Celestini, Thibeault, Masood and Perera (2021) elicited a positive response from students in relation to the implementation of UDL aligned strategies pertaining to student-instructor and student-student engagement, for example facilitating discussions in class, but not in excess and ensuring these are discussed in the context of the overall learning aim. The use of *"activities that foster the use of imagination to solve novel and relevant problems"* (CAST, 2018) are particularly prudent in relation to undergraduate nursing education. There is evidence to support the use of methods such problem-based learning (PBL), a concept that dates back to the 1960s (Barrows and Tamblyn, 1980), in nursing education (Jamshidi, Hemmati Maslakpak and Parizad, 2021). Feedback is essential

when considering guideline 8 (*"Provide options for sustaining effort and persistence"*), with the UDL guidelines stating that *"assessment is most productive for sustaining engagement when the feedback is relevant, constructive, accessible, consequential and timely"* (CAST, 2018).

Enquiry-based learning (EBL), a pedological method where learners attain both skills and knowledge through enquiry in contrast to traditional '*instruction*' has been utilised by Byrne and Nallen (2022), in undergraduate midwifery education. In this instance, the facilitators stated that *"the opportunity to provide contemporaneous individual feedback to students opens the door to authentic discussion of student wellbeing and offers the space to consider appropriate student supports."* This example illustrates the embedding of guideline 9 (*"Provide options for self-regulation"*) directly into instruction. The authors describe how issues relating to peers, finances, family and mental health issues have been brought to light in a safe environment, with the facilitators. Considering that a student's help-seeking behaviours increase as their sense of belonging in higher education solidifies (Bryant, Cook, Egan, Wood and Mantzios, 2022), it is crucial that such methodologies are implemented on a multi-disciplinary level to safeguard student mental health.

5. Conclusion.

The nature of undergraduate nursing education includes domains which both present challenges for, and are conducive to the implementation of the UDL Framework. Areas that are not widely explored in contemporary literature, for example, implementing the framework in the clinical learning environment are deserving of both consideration and further investigation. Considering the increasing number of students with disabilities entering higher education, it is essential that efforts are made to maximise their potential and protect their wellbeing. Although the individual may face challenges in certain aspects of their educational journey, it should be remembered that certain traits will also prove advantageous not only for them, but for the healthcare setting and most importantly in the case of nursing, the patients to whom they will provide care.

6. Relevance Statement.

Educators in both higher education institutions offering undergraduate nursing programmes and clinical areas where students complete clinical placements are likely to encounter students who

would benefit from the implementation of the universal design for learning framework. An awareness of the framework and the ways in which it can be embedded, particularly into the clinical learning environment, are necessary to ensure both a safe and efficacious clinical area and the optimal learning environment for students with disabilities.

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8. Conflict of interest.

There are no conflicts of interest to declare.

9. Data availability statement.

Data sharing is not applicable to this article as no data sets were generated or analysed during the study.

10. References.

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