

Review of AMC (Australian Medical Council) Standards for Assessment and Accreditation of Primary
Medical Programs based on the Universal Design of Learning(UDL) Criteria

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Background/Introduction

In 2023, the faculty of medicine at University of Queensland (UQ) launched a new Doctor of Medicine (MD) program. It is designed to improve three domains: diversity of student cohort that reflects the evolving populations it serves, student and graduate satisfaction, and preparedness of its graduates for internship¹. The MD Design team undertook a 15-month-long process of reflecting the perspectives of the stakeholders through 47 workshops across 17 sites with more than 1100 participants². This process developed into the new key feature of the program—a second-year placement in allied health, general practice and outpatient settings. With an increased emphasis on the Aboriginal and Torres Strait Islander health, rural medicine, and holistic care, all pre-clinical subjects are integrated into a single comprehensive coursework that spans the first two years of MD program. Also, MD Design continuously responds to some of the key trends relevant to medical education, including mental health of medical students and doctors^{1,3}.

Upon its launch, the new curriculum received varied reactions from the first-year students. As anticipated, some students voiced their concerns regarding the implementation and impact of the new assessment model. Currently in year 2, some have found the new features beneficial—early clinical exposure, GP placements, opportunities to reflect and learn from mistakes, and a series of low-stake assessments. On the other hand, others point out that the accommodations for neurodiverse students regressed and the single integrated course that combines all preclinical reduced the curriculum's flexibility, forcing students to take every subjects again if they have to repeat a year. In fact, controversy over medical curriculum renewal is not a novel phenomenon, and some concerns may bear reasonable grounds. L. Maximilian Buja, for instance, a medical educator at the University of Texas Health Science Center at Houston, argued that the new integrated curricula in the American medical schools were at risk of producing graduates deficient in high-level clinical expertise based on a deep grounding in biomedical science and pathology of diseases⁴.

To discuss improving medical education, we need to define who medical education serves. According to Boelen and Heck, the answer is the societal needs and priorities⁵. This perspective justifies the public authority's regulation of medical education. In Australia, the regulatory body is the Australian Medical Council (AMC), which publishes the nation-wide guidelines—AMC Standards for Assessment and Accreditation—for medical curricula. AMC has renewed the standards in response to the changing societal needs, and the most recent AMC Standards 2023⁶, which replaces the previous guidelines published in 2012, calls for major curricular renewals in the medical schools across Australia. Reviewing the AMC Standards, instead of a single medical school's curriculum, will elucidate a stronger conclusion that is generalizable for the nation-wide medical education.

The theme of this study—student-focused medical education—revisits the historical curriculum reform in 1990s that first introduced the 4-year MD programs in Australia. The hallmarks of this new graduate pathway were students-centered learning, self-directed learning, and diversified student selection process that combines interviews, national admission tests, and university Grade Point Average⁷. Subsequently in 2000s, the Australian medical education experienced a rapid expansion in number of students and diversifying student demographics⁶. Through this shift, AMC Standards has been functioning as the curricular framework for Australian and New Zealand’s medical schools since its establishment⁶ and changes in it makes a nation-wide effect, involving numerous stakeholders.

The broad spectrum of stakeholders at virtually every societal level—students, patients, doctors, hospitals, government, and the population at large—is what makes medicine unique, challenging the medical curriculum developers. Medical education sustains the healthcare system and emphasizes patient-centered and community-centered care. However, the traditional driver of medicine—societal needs and priorities⁵—and the patient-centered focus of the education may have, at times, neglected the value of a student-centered focus. Student-centered education, advocated in the 1990s reform, is characterized by fostering personal growth and the diverse potentials of individual students. In this light, some of the new UQ MD curriculum’s features, such as self-reflection and professional development, may suggest a deliberate integration of a humanistic education into medical training. This also aligns with the modern educational philosophies, particularly Constructivist Learning theory, that explains that students come with pre-existing knowledge and experiences influenced by their social and cultural backgrounds, and that learning occurs as they actively build new understanding based on these experiences⁸. Students are encouraged to question, challenge, and critically assess information rather than simply accepting it as it is presented. Likewise, medical education should be more than mere job training—it should be a holistic educational experience driven by the students’ needs and background, as well as the societal needs and priorities.

Australian medical students’ needs are more diverse than before, as their demographics has changed through the major curricular reforms. The reforms in the 1990s⁶ diversified student admission processes, and more rural students have been recruited since the reforms 2000s. Furthermore, more heterogeneity is expected, as stipulated in the new AMC Standards 2023: the new student recruitment strategies highlight a greater inclusion of the Aboriginal and Torres Strait Islander students, students with rural backgrounds, and students from equity groups. Diversified sociocultural identities create increased variability in learning among students⁹, since they vary in why they learn, what they learn, and how they learn⁹. In other words, they have various modes of motivation of learning, perception of learning, and expression of learning⁹. To address this shift for variability and diversity in medical education, I will use the Universal Design for Learning (UDL) guidelines to review the AMC Standards.

The UDL guidelines¹⁰ (Table 1), developed by the Center for Applied Special Technology (CAST), provide a research-based framework aimed at improving teaching and learning for everyone, drawing on scientific understanding of how humans learn¹¹. These guidelines are designed to eliminate barriers in education, making learning accessible to a broader range of students¹². UDL's origins lie in Universal Design (UD), an architectural theory by Mace that emphasizes creating products usable by everyone, to the fullest extent possible, without the need for adaptation or specialized design¹³. Today, we see UD principles in everyday life—such as wide doorways and automatic door openers that benefit people in wheelchairs, the elderly, and parents with strollers¹⁴. In the educational setting, UD concept is translated into UDL. By adapting the learning environment for all students, rather than only those with specific needs, UDL would help Australian medical schools be accessible to all students, including those who have diverse learning styles, challenges, or learning disabilities¹⁵. Furthermore, it is reasonable to expect that UDL could assist students with undiagnosed learning difficulties, which might be overlooked by individualized academic interventions, thereby addressing disparities in educational access across different socioeconomic backgrounds.



Table 1

I expect that this study will find its niche in academia in both education and medicine. There seems to be a void space in the academic discourse on UDL for the post-secondary education. During literature review, it was remarkably common to find the authors that refers to the limited volume of research on UDL in higher education^{16,17}. Peña points out that, by not accepting papers on student with

disabilities, the top tier journals may unintentionally send the message that this topic is less important than other issues in higher education¹⁷. Less than hundred literatures were found on Proquest Database, while there were more than a thousand literatures on the secondary education settings. Literatures in STEM and nursing curriculum are rare, and there were hardly any in the medical education setting. Despite the lack of academic discourse, some leading universities in North America, such as Johns Hopkins, Harvard, McGill, report that they have implemented or are implementing some degree of UDL in their curricula, according to Bradshaw¹⁷. Motivated by this global trend in universities and the void space for UDL discourse in medical education academia, I pose the following question from a student's point of view:

To what extent do the AMC Standards align with UDL principles?

In addition to the works cited above, I advised the studies written by Fogarty¹⁸, Scanlon et al.¹⁹, Schreffler et al.²⁰, Reardon & Unruh²¹ and Nieminen & Pesonen²², which are included in the bibliography.

Aims/Anticipated Outcomes

The anticipated outcomes are a research abstract and presentation about the critical analysis of *Standards 2: Curriculum* section of AMC Standards 2023, based on the three pillars of UDL guidelines criteria—engagement, representation and action & expression. The literature review will explore the recent papers about the UDL principles applied in other fields of tertiary education. Subsequently, it will be compared with how it is reflected in the AMC Standards from a medical student's point of view, in order to identify potential gaps for improvement and areas of strength. Furthermore, some suggestions will be proposed to address those gaps, using the concrete recommendations in UDL Guidelines.

It is a timely study in keeping with the global movement in many leading universities, such as Johns Hopkins, Harvard and McGill¹⁷. The vigorous academic programs in STEM that have already implemented UDL principles in their curricula will be explored in the literature review²³. This study will be one of the few studies that discuss UDL in the field of medical education. The goal of this study is specific to Universal Design of Learning of the Australian medical education, through literature analysis of the relevant regulatory document, AMC Standards 2023. The result is measured via the 31 bullet point

criteria in the UDL framework. For the limited time frame of 12 weeks, it is a realistic and achievable plan to analyse 21 clauses in the *Standards 2: Curriculum* section.

Integrating the UDL framework in the medical curriculum would help more diverse learners succeed in the medical schools in Australia. Furthermore, the impact of more inclusive experience in medical school can be long-lasting and exponential. The students later in their career may shape the culture within the medical community more inclusive, influencing the peer-to-peer relationship, doctor-patient relationship, trainer-trainee relationship, and multidisciplinary collaboration in healthcare. Therefore, the stakeholders of this research will encompass a wide spectrum, including the patients, hospitals, doctors, medical educators, allied health workers, and potentially the Queensland Department of Education.

Methods

To identify the strengths and weaknesses of Australian medical education in supporting diverse students, the UDL guidelines will be used to review the *Standard 2: Curriculum* section of the AMC Standards document. The guidelines and standards will be directly accessed through the official websites of CAST¹⁰ and the AMC⁶. The *Standard 2* section is comprised of three subsections—*Medical Program Outcomes and Structure(2.1)*, *Curriculum Design(2.2)* and *Learning and Teaching(2.3)*. Each subsection is comprised of a set of principles and in total, there are 21 principles in *Standard 2: Curriculum*. Each of the 21 principles will be critically analyzed through the lens of the UDL guidelines as to how each principle serves, or does not serve, one or more of the three main pillars of the UDL guidelines—*Design Multiple Means of Engagement*, *Design Multiple Means of Representation*, and *Design Multiple Means of Action & Expression* (table 1). Each pillar consists of three subsets—*Access*, *Support*, and *Executive Function*. For example, part of the research outcome may be read, “the principle 2.2.x in the AMC Standards follows the *Design Multiple Means of Engagement* of the UDL Guidelines by clarifying the meaning and purpose of goals. Moreover, the Guideline suggests some practical options, such as..., for the curriculum designers to consider.” Through checking each principle’s congruency with each UDL pillar or subset, I will be able to identify which parts are addressed or not addressed in the AMC Standards’ curriculum section. In the discussion, I will explore some practical options to address the weaker areas of the AMC Standards, using the guideline’s suggested options.

Proquest Education database will be utilized for the literature review. Its comprehensive, transparent, and reproducible search capacity makes the study more internally valid. The comprehensive

database provides access to a wide range of international full-text journals, dissertations, and theses. The Boolean operators, truncation, and the filtering options, such as date of publication and peer-review, makes the literature review more specific, relevant, and current. Moreover, the “save search history” function keeps my search record transparent for the readers to reproduce it. Some alternative databases, such as ERIC, A+ Education, and EBSCOhost, were considered, however, Proquest Education is most suitable for the topic of UDL, since it is more interdisciplinary than ERIC, an education-specific database, more international than A+ Education, an Australian-specific database, and more comprehensive than EBSCO in searching dissertations and theses. Another reputable source, *Medical Education*, published by Association for the Study of Medical Education(ASME), was considered, however, not many results could be found with the keyword of UDL, due to its emerging nature in the field of medical education.

The keyword combination used is abstract("universal design for learning" OR “universal design” OR “UD” OR “UDL”) AND abstract("higher education" OR "university:" OR "tertiary education"). The search results were filtered for full-text, peer-reviewed literature published in English after 2000.

The current research design bears several inherent limitations. Firstly, UDL Guidelines were not designed to be used as a scoring system. Therefore, the magnitude of weakness and strengths—how weak or how strong it is—cannot be measured, despite it can identify the potentially neglected, or completely missing UDL criteria. Secondly, the AMC Standards are purposefully abstract, in order to allow each medical program’s discretion to adjust based on their unique circumstances. There can be different interpretations of the same principle by others and my qualitative interpretation can be biased by my own experience. For example, determining whether or not the principle 2.1.1 addresses *Design Multiple Means of Engagement* reflects on my subjective values. Thirdly, it would be asymmetric to compare the individual tertiary institutions reviewed in literatures and the nation-wide Australian AMC guideline. Finally, the literature review cannot determine what would be the UDL implementation suitable to medical education specifically, since they involve different academic fields—STEM, nursing, and other undergraduate programs. These four factors would justify further investigation of each individual curriculum throughout Australia that identifies their unique problems and elucidate more practical actions for their specific needs. In addition, it would require a separate study to explore how to develop an UDL that satisfies the unique diversity of the tasks required in medical education and its stakeholders. As a medical student and participant within the new MD curriculum this task may be influenced by my own internal biases and experiences and thus not impartial. In order to reinforce the second limitation, my future study will include the students’ voices and perspectives within the MD educational setting, ideally through a large scale interview or survey-based qualitative study design.

Timeline

DATES	TASKS
AUG. 19	Review of AMC Standards – Curriculum section
AUG. 26	Breakdown of the UDL guidelines – subsections
SEPT. 2	Review the UDL guidelines
SEPT. 9	Juxtapose UDL guidelines and AMC Standards
SEPT. 16	Juxtapose UDL guidelines and AMC Standards
SEPT. 23	Juxtapose UDL guidelines and AMC Standards
SEPT. 27	<i>Supervisor review</i>
SEPT. 30	Develop abstract draft
OCT. 7	Develop presentation slides
OCT. 11	Abstract draft due
OCT. 14	Develop presentation slides
OCT. 18	Abstract due
OCT. 21	Practice presentation
OCT. 28	<i>Post-stream review</i>
EXAM PERIOD	Presentation

Bibliography

1. Resources - Project Launch Briefing [Internet]. Uq.edu.au. 2022 [cited 2024 Aug 14]. Available from: <https://medicine.uq.edu.au/md-design/resources>
2. Foster K. Involving stakeholders in re-imagining a medical curriculum. *The Asia Pacific Scholar*. 2023 Jan 3;8(1):43–6.
3. Watling C. Tackling medical student stress: beyond individual resilience. *Perspectives on Medical Education*. 2015 May 28;4(3):105–6.
4. Buja LM. Medical education today: all that glitters is not gold. *BMC Medical Education*. 2019 Apr 16;19(1).
5. Boelen C, Heck JE. Defining and Measuring the Social Accountability of Medical Schools. World Health Organization Geneva; 1995.
6. Review of Accreditation Standards for Primary Medical Programs (medical school standards review) [Internet]. Australian Medical Council. Australian Medical Council; 2023 [cited 2024 Aug 11]. Available from: <https://www.amc.org.au/accredited-organisations/review-of-accreditation-standards-for-primary-medical-programs/>
7. Geffen L. A brief history of medical education and training in Australia. *The Medical Journal of Australia* [Internet]. 2014 Jul 7;201(1):S19–22. Available from: <https://www.mja.com.au/journal/2014/201/1/brief-history-medical-education-and-training-australia>
8. Banks JA. Multicultural Education: Historical Development, Dimensions, and Practice. *Review of Research in Education*. 1993;19(19):3–49.
9. Seifert K. Educational Psychology, Second Edition: Kelvin Seifert, Rosemary Sutton : Free Download, Borrow, and Streaming : Internet Archive [Internet]. Internet Archive. 2014 [cited 2024 Aug 15]. Available from: <https://archive.org/details/EducationalPsychologySecondEdition/page/n17/mode/2up>
10. CAST. Universal Design for Learning Guidelines version 3.0 [Internet]. UDL Guidelines. CAST; 2024 [cited 2024 Aug 11]. Available from: <https://udlguidelines.cast.org/>

11. Bastoni A, Goldammer S, Luis P, Schwab T, Vobornik E. Improving Professional Development for Adult Education Instructors Using Universal Design for Learning (UDL): the Resource of Education". DOABE. 2023;12(2):91–106.
12. Meyer A, Rose DH, Gordon D. Universal design for learning - theory and practice. Cast Professional Publishing; 2014.
13. CAST. About Universal Design for Learning [Internet]. CAST. 2024. Available from: <https://www.cast.org/impact/universal-design-for-learning-udl>
14. Edwards J. UDL COURSE DESIGN AND INSTRUCTION IN HIGHER EDUCATION. Fairleigh Dickinson University [Internet]. 2024 [cited 2024 Aug 15]; Available from: <https://www.proquest.com/docview/3067825928/955BA221E4DE4E73PQ/1?accountid=14723&sourcetype=Dissertations%20&%20Theses>
15. Fovet F, Mole H, Jarrett T, Syncox D. Like fire to water: building bridging collaborations between Disability service providers and course instructors to create user friendly and resource efficient UDL implementation material. Collected Essays on Learning and Teaching. 2014 May 22;7(1):68.
16. Bradshaw D. Proactive Design and Inclusive Practice: Understanding Universal Design for Learning. Proceedings of the 2020 AERA Annual Meeting. 2020 Jan 1;
17. Peña EV. Marginalization of Published Scholarship on Students With Disabilities in Higher Education Journals. Journal of College Student Development. 2014;55(1):30–40.
18. Fogarty D. Universal Design for Learning: A New Clinical Practice Assessment Tool Toward Creating Access and Equity for ALL Students. Loyola Marymount University [Internet]. 2017 Jan 1 [cited 2024 Aug 15]; Available from: <https://www.proquest.com/education/docview/1957430997/20981C42262F4214PQ/5?accountid=14723&sourcetype=Dissertations%20&%20Theses>
19. Scanlon E, Schreffler J, James W, Vasquez E, Chini JJ. Postsecondary physics curricula and Universal Design for Learning: Planning for diverse learners. Physical Review Physics Education Research. 2018 Jul 2;14(2).

20. Schreffler J, Vasquez III E, Chini J, James W. Universal Design for Learning in postsecondary STEM education for students with disabilities: a systematic literature review. *International Journal of STEM Education*. 2019 Mar 4;6(1).
21. Reardon K, Unruh D. Universally Designed Learning in Postsecondary Education: A Synthesized Framework. 2021 [cited 2024 Aug 15]; Available from:
<https://www.proquest.com/education/docview/2522431605/8F7F37535B07402FPQ/1?accountid=14723&sourcetype=Scholarly%20Journals#>
22. Nieminen JH, Valtteri Pesonen H. Taking Universal Design Back to Its Roots: Perspectives on Accessibility and Identity in Undergraduate Mathematics. *Education Sciences*. 2019 Dec 31;10(1):12.
23. Basham JD, Marino MT. Understanding STEM Education and Supporting Students through Universal Design for Learning. *TEACHING Exceptional Children*. 2013 Mar;45(4):8–15.
24. Zimmer MA. Universal Design in Higher Education: From Principles to Practice - Edited by Sheryl E. Burgstahler and Rebecca C. Cory. *Teaching Theology & Religion*. 2012 Jan;15(1):89– 91.