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Orientation and Mobility (O&M) specialist education: Reflecting on the University of New South Wales (UNSW) Graduate Diploma in O&M

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Abstract

Orientation and Mobility(O&M) is the practice of enabling and empowering people with low vision or blindness to know where they are (orientation), so they can navigate and move around their surroundings independently and safely (mobility) (Deverell and Scott, 2014). O&M specialists work with people of all ages, tailoring interventions to suit individual client needs. The first Australian trained O&M specialists graduated in 1971 (Deverell and Scott, 2014). Since then, programmes to train O&M specialists in Australia have migrated between universities and between states. Traditionally, industry supported their O&M workforce by selecting, managing, and supporting students financially during their training and in some cases providing in-house training. The introduction of the National Disability Insurance Scheme (NDIS) (rolled out from 2013-2020) has seen a shift in the O&M profession, with more O&M specialists moving to private practice or between organisations. This shift necessitated a change away from industry-driven training to independent student-initiated university training where the university is responsible for the selection, training, and competency of the graduate. Thus, the Graduate Diploma in Orientation and Mobility (Australian Qualifications Framework-8 level qualification), was established at UNSW, Sydney to create a sustainable programme to strengthen the Australian O&M workforce. This manuscript, written from the perspective of the UNSW O&M education team, which includes academic and professional staff with expertise in O&M, Optometry and Vision Science, will describe the initiation of the Graduate Diploma in O&M at the UNSW School of Optometry and Vision Science. It explores and describes the education agenda, including challenges, and innovative initiatives for teaching O&M preservice specialists.

Keywords

Orientation and Mobility, Specialist education, Innovation, Work integrated learning, Vision rehabilitation

Establishment of the O&M Programme

In October 2020 the UNSW School of Optometry and Vision Science partnered with Guide Dogs NSW/ACT to develop a national Graduate Diploma in O&M, that would meet Academy for Certification of Vision Rehabilitation and Education Professionals' (ACVREP) requirements for graduates to become a Certified Orientation and Mobility Specialist (COMS) and meet Orientation and Mobility Association of Australasia's (OMAA) requirements for becoming a Registered Orientation and Mobility Specialist in Australasia (ROMSA).

The Graduate Diploma was designed, developed, and delivered for the first time in 2021, by a collaborative team from UNSW, Guide Dogs NSW/ACT, and other O&M industry experts. It was designed as a one-year programme, (8 courses) covering topics such as models of disability service provision, the visual and sensory systems, orientation strategies, mobility techniques, low vision re/habilitation, learning theories, accessibility, and adaptive technology. A national steering committee was established, bringing together key stakeholders in the profession. Initially, it was established to support the first phase of the programme, and the Steering Committee served in an advisory role to enable UNSW to develop the programme. Once the programme moved past the initial development phase and following a review of the Committee's Terms of Reference, the Steering Committee moved to meeting quarterly and member representation was widened to better incorporate and capture key stakeholders across all states and shared membership representation within organisations in consideration for existing representatives' busy roles.

The current O&M workforce shortage is felt throughout Australia, driven by the current and anticipated increase in prevalence of vision related disability, especially in rural and disadvantaged communities (Chang et al., 2021). To address the national need the new programme intended to educate students in their home state and rural environments. This required all lectures and tutorials to be delivered online with face-to-face practical and work integrated learning components (WIL), which were offered in students' home states where possible. The supervised work integrated learning (WIL) placements or practicums would involve students working directly with individuals with visual impairment (VI) to apply the theoretical knowledge in real-world settings. The intention of creating an online programme and offering placements in the student's home state and especially rural locations, wherever possible, was that graduates would be encouraged to continue to live and work in that location, after qualifying, and meet the workforce needs in those locations. The programme's design also took into consideration that the niche nature of this specialist field within Australia, which, because of its small size, would not support more than one Australian O&M programme, and, thus, there was a need for the programme to be completed from anywhere in the country.

Student selection, retention, programme completion and employability

Tertiary education selection is often based on academic merit. Admission criteria into the UNSW Graduate Diploma of O&M, has not included specific prerequisite degree completion but requires completion of any Australian Qualification Framework Level 7 undergraduate degree. The intention of this was to widen candidate catchment to the profession, as recommended by industry partners.

Students entering the programme come with varied backgrounds. Those with backgrounds in health or education have been well placed to manage the course content and practical teaching components. Students from other undergraduate pathways demonstrate variable results, with some doing well and others provided with support to assist them in meeting competencies. Another challenge was that O&M specialists are required to have certain physical, emotional intelligence and communication abilities which are not currently part of programme entry criteria.

Due to limited places and to ensure candidate suitability, a selection interview is now being considered. Further evaluation and evidence are needed, however, about the most effective interview format to assess critical attributes for O&M student success, which can be utilised in the selection process (Patterson et al., 2016; Roberts et al., 2018). While the Graduate Diploma in O&M has not yet initiated a formal interview process, for the 2023 and 2024 intakes, individual meetings with programme staff and observation days of O&M specialists working with clients (provided by industry partners) have been offered to prospective students. This has improved student understanding

of course and job requirements and what a career as an O&M specialist entails. Undergraduate requirements for entry have not been narrowed, however, UNSW does recommend qualifications or work experience in the health sciences or education, and communicates to prospective students the required physical, emotional, and communication attributes for successful programme completion.

The question of how to attract and enrol students, who are likely to be successful in training and, ultimately, become competent O&M specialists remains key to ensuring the programme is successful, remains sustainable, and meets workforce needs.

Asynchronous remote programme design

The Graduate Diploma addresses the pressing need for O&M specialists, particularly in larger geographic and rural areas. The programme aims to train students in these regions and increase the number of O&M professionals working in their communities. To effectively cover these geographical areas, the programme chose to adopt a distance education model. This decision was influenced by Australia's extensive experience in distance education, dating back to the early 1920s (White, 1982; Hiani, 2015). This rich history of distance education in Australia has laid the foundation for a thriving online education ecosystem. It is a testament to this ecosystem's vitality that, according to University Rankings Australia (2023), postgraduate students exhibit a strong preference for distance education. This preference is likely driven by the demands of their existing work commitments and other life obligations. In fact, Australia currently boasts a staggering enrolment of 82,324 postgraduate students pursuing their studies through distance education across various universities and different states.

Distance education offers numerous advantages, including flexibility, and accessibility, which accommodate the needs of working adults (postgraduate) and individuals with busy schedules (Belanger and Jordan, 2000). This approach allows for customized pacing, enabling learners of varying speeds and promoting inclusivity (Koenig and Robinson, 2001).Learners have the opportunity to engage deeply with materials such as pre-recorded lectures, virtual classroom interactive tutorials and interactive videos, using modern online platforms, such as Moodle Pty Ltd (Learning Management System- LMS). This approach enables the incorporation of multimedia elements, discussion forums, interactive quizzes, and other digital tools, that all enhance the learning experience and accommodates diverse learning styles (Al Rawashdeh, 2021). Moreover, online education cultivates crucial skills in self-discipline and time management, while remaining aligned with industry needs, ultimately facilitating career advancement (Koenig and Robinson, 2001; Ovetz, 2021). Notably, the programme's online nature proved to be remarkably adaptive during the Coronavirus (COVID-19) pandemic. Recorded instructional videos, interactive tutorials and the students undertaking home/area-based tasks, effectively addressed early course components that previously required face-to-face interaction. This experience underscored the resilience of online education for didactic teaching, demonstrating its potential to meet the evolving needs of a diverse array of learners (Pregowska *et al.*, 2021)
The programme launched in June 2021, and COVID-19 shutdowns meant that subject matter experts were not able to travel to Sydney to pre-record lectures but adapted to develop and record lectures from home. Students could not meet for face-to-face O&M techniques training, with the programme pivoting to create accessible videos, which modelled techniques, instead. Furthermore, the face-to-face, intensive O&M techniques training was delayed to January 2022, for the cohorts most impacted by the pandemic. While learning was adapted to continue remotely and online, O&M techniques training seemed to achieve best results by bringing the group together to practice on each other. The current programme requires 5 weeks (2+3-week intensive blocks) of face-to-face O&M techniques training.

Evidence based practice

The Graduate Diploma demonstrates a constant commitment to evidence-based practice in the development and adaptation of its curriculum. This commitment is evident through a holistic approach that incorporates rigorous research, O&M specialist expertise, and the invaluable insights of programme beneficiaries.
The academic team examines the latest research findings and industry best practices, ensuring that the curriculum aligns with the most current developments in the field of Orientation and Mobility. This process typically takes place after each trimester, with a rigorous review and revision that ensures the programme's content remains current and relevant.

Beyond scholarly research, the programme places significant value on tapping into the expertise of knowledgeable and experienced O&M specialists, professional bodies, and industry. Some of the ways this expertise has directed the programme include: establishing a steering committee, with representation from key rehabilitation agencies; guest lectures from experts in their fields; inviting into the O&M Techniques training, a range of tutors with varied geographical and specialist experience; and actively seeking insights from other university O&M preparation programmes. The programme actively collaborates with experienced O&M professionals, who bring a wealth of practical wisdom, enriching the curriculum with insights

garnered from their extensive professional background (Johnson, 2015; Thompson, 2021).

The programme places a strong emphasis on the direct experiences and values of those who directly benefit from the services, which are provided by programme graduates. This direct engagement with programme beneficiaries stands as a fundamental pillar of the programme's philosophy. The invaluable feedback and distinctive perspectives shared by these individuals continually shape and enhance the curriculum, ensuring that graduates are not only technically proficient but also deeply attuned to the human and personal dimensions inherent in the realm of Orientation and Mobility services.

Furthermore, all online programme material was created to be accessible by a student, who is blind or has low vision. The programme materials are continually being reviewed and mapped to ensure they are accessible, relevant and address ACVREP's key domains and industry requirements. In addition, the programme's faculty work closely with UNSW Equitable Learning Services (ELS), formerly known as the Disability Support Unit, in providing practical support to ensure students' mental or physical health conditions do not adversely affect their studies, thereby, giving them every opportunity to succeed in the programme.

Table 1. Challenges and factors that influenced the UNSW Graduate Diploma in O&M programme design

Historical O&M programmes	**Programme Re-design in the UNSW Graduate Diploma Of O&M**
Industry stakeholder/employer selection and sponsorship of O&M students through their specialist training.	Open student access to the course. Training and competence are the responsibility of the university. Partnership with industry and O&M profession through consultation and a National Steering Committee.
Financially non-viable to employ and cover all tuition costs due to attrition and movement of industry work force.	Student education independence: self-pay with availability of Commonwealth Supported Places (CSP). Industry supports WIL and, in some cases, provides bonded scholarships.
Attempts by state organisations to train O&M's locally with connections to separate state-based education institutions. Difficulty gaining sufficient student numbers to make programmes viable and sustainable in the long term.	UNSW programme design to encourage students from across Australia, using online education delivery and training students in their home state and rural locations wherever possible.
Greater amount of face-to-face and synchronous learning required.	Online asynchronous lectures, with practicals and WIL in home state, where possible. Enhancing use of new developments in online learning technology, such as interactive online learning modules and cloud-based video conferencing platforms.
Practical work is very time consuming and costly.	Remains a time-consuming component. The programme has explored innovative teaching methods to reduce the time taken, including: the development of online videos to demonstrate best practice techniques with students able to practice in their homes; and the use of practical tutors in student's home states. A trial in the use of virtual

	reality (VR) and augmented reality (AR) will begin in 2024 with the intention of reducing the time and cost of practical skill learning components.
Not specifically designed to meet ACVREP core domain requirements for COMS certification.	Designed from initial concept phase of development to meet ACVREP core domain requirements for COMS certification.
Programmes of various lengths with most recent programmes at master's level and taking 18-24 months.	Graduate Diploma level chosen as balance between maintaining academic rigour and candidate's ability to complete the programme in a shorter timeframe (1 year). Challenge remains to cover required content in 1 year.

O&M Techniques Training

In O&M, face-to-face techniques instruction stands as a vital and indispensable practice, especially within the context of this Graduate Diploma. Requiring students to practice orientation and mobility techniques under blindfold or low vision simulation goggles/glasses is a legacy approach to experiential learning. The purpose of this type of learning is for students to develop 'embodied' knowledge of how 'to use a long cane and other aids to travel confidently in the community with little or no vision' (Johnson, 2015, p 93). The experience is also designed to enhance students' understanding of a range of teaching strategies and the appropriateness of each approach to assist learning in various scenarios, as they, themselves, learn these skills with limited or no sight. As students work in pairs, alternating in the roles of O&M specialist and client, this method provides students with practice teaching O&M skills in a simulated environment. The UNSW programme meets the OMAA requirement for candidates to experience 80 hours of blindfold or low vision simulation to register as a ROMSA (Registered Orientation and Mobility Specialist in Australasia). According to the OMAA Scope of Practice, 80 hours of blindfold/low vision travel experience is needed, which was also 'estimated in 2018 by the Board of O&M Australasia after collaboration with educators involved in O&M personnel preparation in Australia, New Zealand, and USA (OMAA (Orientation and Mobility Association of Australasia), 2023, p. 6). The amount of time dedicated to learning under blindfold/simulation deserves further exploration. Blindfold simulation is emotionally taxing on students and the workforce and is costly due to the high supervision requirements. Training of orientation and mobility students' needs to be sustainable and financially viable. Research into the number of hours under blindfold/simulation that leads to the greatest benefit with the least negative impact is required.

As part of the Graduate Diploma, students currently complete the O&M techniques training, including blindfold/simulation training, via face-to-face learning over two intensive training blocks totalling five weeks at UNSW Sydney. While the OMAA Scope of Practice recommends at least 80 hours of techniques practice under blindfold/simulation. OMAA does not specify the number of hours when acting as the student teacher of another student. Similarly, ACVREP does not specify the required number of hours under blindfold/simulation or the required teaching hours when teaching a fellow blindfolded student. The Graduate Diploma's course development has split the 'student to-student' techniques teaching from the 'student to client' teaching placement. The programme requires a student to reach a minimum competence when teaching their blindfolded colleague prior to undertaking WIL placement and termed this competence 'WIL ready'. Anecdotal evidence has suggested that students with different educational backgrounds and work experience take a different amount of time to reach WIL ready competence. Further research into the factors influencing WIL ready competence may be beneficial to inform future student selection.

Work Integrated Training (WIL) placements

Work Integrated Learning (WIL) is indispensable for O&M specialists in Australia, offering a transformative bridge between theoretical understanding and real-world application (Whiteley, 2019). Through hands-on experiences, professionals can refine their skills in orientation

and mobility training, adaptive technology use, and environmental awareness, which are essential facets of their practice (Deverell et al., 2022). Moreover, WIL cultivates a client-centred approach (Kallio et al., 2022), enabling specialists to directly engage with individuals, who are blind or visually impaired, and fostering an understanding of the diverse needs and learning preferences within the Australian context.

Cultural competence is paramount, considering Australia's rich diversity, and WIL facilitates interactions with clients from varied backgrounds, thereby enhancing specialists' ability to provide inclusive services (Collins et al., 2019; Jeanes et al., 2022). These experiences also encourage the development of ethical awareness and legal understanding, ensuring that services are delivered within the bounds of professional standards (Griffin-Shirley *et al.*, 2019, 2021). Additionally, WIL creates avenues for networking, mentorship, and continuous professional improvement, making graduates more employable and adaptable to evolving client requirements. As a result, WIL not only equips specialists with practical skills, but, also, nurtures empathy and adaptability, enhancing the overall quality of orientation and mobility services in Australia.

ACVREP specifies that work placements be at least 350 hours (including 250 “instructional hours”) working with actual clients, who have low vision or who are blind, in order to reach competence and receive professional certification as a COMS by ACVREP. Achievement of the required client focussed hours under supervision has proven to be unrealistic in a one-year post graduate programme. ACVREP does not recognise the hours a student instructs a simulated client (i.e., ACVREP does not recognise the hours where the student instructor teaches their colleague who is under blindfold). ACVREP have been supportive of the UNSW O&M programme and given the disparities between USA and Australia (e.g. a lower population more geographically spread; more domiciliary/community-based programmes and lower availability of supervisors) we believe there is the need for ACVREP to review COMS supervision requirements in consideration of the Australian context. Also, evidence, which supports the supervision time that is required for students to reach a level of independent O&M practitioner competence, is lacking and is an area that would benefit from research.

Challenges and adaptations:

The programme accepted its first cohort of six students in June 2021. Since then, the programme has continually been reviewed and adapted, considering COVID-19 lock down implications, industry feedback and the needs of a post graduate cohort, such as managing financial, work and family responsibilities.

Change to placement hour requirements

As the hours required to meet ACVREP accreditation were extensive and proved to be unrealistic to achieve along with coursework within a 1-year course duration, the WIL parameters were revised to focus on competency, rather than the required hours. This is in line with other medicine and health disciplines embracing competency based, rather than prescribed hours for placements (Frank et al., 2010). Students now can graduate based on the achievement of all required competencies and, if wishing to gain COMS certification, can then complete any remaining required supervision hours with an employing organisation or independent supervisor post-graduation. At this point in time in Australia, graduates can practice as O&M specialists without COMS certification.

Changes to O&M techniques training format

Originally, the intention was to provide all O&M techniques training in a student's home state by pairing two students together with a local O&M specialist, who would provide the training. Pairing is needed so that students train, not only under blindfold or simulation, but, also, train to instruct the other student. The geographical spread of students and availability of O&M specialists to provide the training meant that, in many cases, it was difficult to pair students and O&M instructors. Short intensive on-site group training was initially added to supplement the local training. However, this also introduced challenges to the programme with students having completed varying amounts of local training and being at very different levels of competence. Thus, techniques training in home states has currently migrated to two separate blocks of intensive training, totalling five-weeks, conducted on campus at UNSW.

Creating these two separate O&M techniques intensive blocks assisted the student's learning of O&M techniques through the use of a spiral curriculum design. Blindfold simulations and

beginning techniques training at the beginning of Term 1 allowed students to reflect on learnings through the term, consolidating and progressing their O&M techniques acquisition and teaching abilities more quickly in Term 2. Students commented that having the first intensive block in Term 1 enabled them to know what to expect and come prepared for the intensive block in Term 2. This along with other changes, allowed the students to be better equipped and ready to undertake their Work Integrated Learning (WIL) placements 4 weeks earlier than in the previous year.

Another benefit of bringing a techniques intensive block into Term 1 was that students were able to gain a deeper understanding of the purpose and end goal of undertaking the Graduate Diploma O&M and the role of an O&M specialist early in the programme. This enables students to withdraw from the programme early and without penalty, should the programme not be personally suited. Students also commented that as most of the programme is conducted on-line, they enjoyed the opportunity to come together early in the year to get to know each other. They felt that this assisted their engagement and peer interactions throughout the rest of Term 1. Following feedback and review, adaptions to the content of the O&M techniques training has also taken place, in order to include a greater focus on mobility with low vision, O&M assessment, recommendations for mobility aids, and programme planning.

Addition of a 2-year study option

An important development in the programme was to allow students to manage their own workload and complete the Graduate Diploma over either one or two years. This was an important option for postgraduate students, who often have other responsibilities. If completing the programme over two years, students undertake all online theory components in the first year, during which they have a part time study load. In the second year these students complete the practical O&M techniques course and then undertake WIL placements on a full-time basis.

Sourcing and supporting WIL placements.

Finding WIL placements remains challenging, because these require the support and commitment from industry partners, who have limited workforce resources and need to prioritise efficient client care. As such, student numbers are restricted by WIL availability. The success of the programme relies on strong collaborative partnerships with employers and WIL supervisors.

Program review, together with feedback from students, supervisors and industry (in 2021 and 2022) led to progressive increases in the support provided to supervisors and organisations once students were on placement. 2022 saw the introduction of online partner organisation and supervisor information sessions and meetings, and wider industry representation on the Graduate Diploma in O&M steering committee. In 2023 national site visits were conducted by the WIL course convenor to assess student competence, support supervisors, and strengthen industry relationships.

Financial viability and sustainability.

Programme development was generously supported by Guide Dogs NSW/ACT. However, the ongoing sustainability of a programme with low student numbers (partly due to limited WIL placement opportunities) and high O&M techniques supervision costs is an ongoing challenge. Following a costing review, programme fees for students were increased slightly in 2023 to make the programme more viable. The programme has gained access to Commonwealth Supported Places (CSP) funding, which has been invaluable to students enrolled in the programme.

Adaptions to Programme Content

An ongoing challenge is to provide a comprehensive course to participants within one year because it needs to cover an enormous amount of content, as well as practical components that meet industry certification requirements. Subsequently, programme authorities are continually seeking feedback and reviewing programme content to ensure programme graduates are well prepared for the workforce within the time available.

Ongoing work

The following are current or future focus areas for ongoing programme development:

- More clearly defining O&M competencies through the use of Entrustable Professional Activities (EPAs). EPA's are identifiable tasks with specific behaviours which can be readily observed and assessed. "The behaviours help trainees understand how

they can improve, and help supervisors to make decisions about whether trainees can be trusted to do the task with supervision at a distance" (The Royal Australasian College of Physicians, 2022, p. 4). Whilst the programme currently uses ACVREP's clinical competencies and has developed "indicators" to provide more guidance for students and supervisors, this may be improved through use of more detailed EPAs.

- Further investigation into sustainable and effective distance learning methods to teach technical and practical skills. For example, the use of Virtual Reality/Augmented Reality will be trialled through a pilot project in 2024.
- Research into student attributes and how they impact success in the O&M programme and as an O&M specialist.
- Development of a Graduate Certificate in Vision Impairment. Currently in development, the graduate certificate will offer students an entry/exit pathway to/from the Graduate Diploma. The certificate programme will give students recognition for the didactic subjects and opportunity to work in aligned non-O&M careers in the sector, and without the need to master O&M techniques/instruction. This will also meet the need to graduate a cohort prepared for alternative careers within the VI sector in research, management, education, and other areas of VI rehabilitation.
- Supporting the establishment of the OMAA Tertiary Education Subcommittee. In the last few years, the number of O&M specialists in Australia gaining certification through ACVREP has grown dramatically, with Australia now having the third largest number of COMS after the USA and Canada (according to ACVREP's Directory of Certificants). To increase the regional representation to ACVREP, specifically related to O&M preparation programmes in the region, UNSW have supported the OMAA Standards Committee in establishing the Tertiary Education Subcommittee. As well as representing the Australian context to ACVREP, the sub-committee will provide networking and collaboration opportunities to encourage excellence in the field of O&M preparation.

Conclusion

The Graduate Diploma in Orientation and Mobility has enrolled three cohorts in its two and a half years, with 18 UNSW O&M graduating specialists across the states of Queensland, New South Wales, Victoria, South Australia, Tasmania, and Western Australia. It remains the only programme of its kind in Australia. At least one student has achieved COMS certification through ACVREP, validating that the programme successfully covers the ACVREP core competencies. This certification is encouraged, but not a requirement to work as an O&M specialist in Australia, and all graduates have reported working in the sector as O&M specialists. Future work that the UNSW O&M education team intends to explore includes: (1) research into O&M workforce attrition rates and sector numbers of new graduates required to meet sector needs, (2) trialling innovative pedagogical approaches suited to our student group and educational context, (e.g., use of VR/AR); (3) researching minimum client face-to-face work hours required for students to reach competence, and the impact of simulated client training experiences; and (4) investigating ways to strengthen the sustainability of the programme. Along with program developments already achieved, the team hope continued developments in these areas will enable the Graduate Diploma of O&M at UNSW to continue making a strong contribution, over the long term, to the O&M workforce needs in Australia.

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References

1. Belanger, F., and Jordan, D.H. 2000 *Evaluation and Implementation of Distance Learning*. IGI Global. Available at: https://doi.org/10.4018/978-1-878289-63-6.

2. Chang, K.J., Rogers, K., Lung, T., Shih, S., Huang-Lung, J. and Keay, L. 2021 'Population-Based Projection of Vision-Related Disability in Australia 2020 – 2060: Prevalence, Causes, Associated Factors and Demand for Orientation and Mobility Services', *Ophthalmic Epidemiology*, 28(6), pp. 516–525. Available at: https://doi.org/10.1080/09286586.2021.1875009.

3. Deverell, L. and Scott, B. 2014 'Orientation and Mobility in Australia and New Zealand: Situational Analysis and Census', *Journal of Visual Impairment & Blindness*, 108(1), pp. 77–82. Available at: https://doi.org/10.1177/0145482X1410800109.

4. Frank, J.R., Snell, L.S., Cate, O. Ten, Holmboe, E.S., Carraccio, C., Swing, S.R., Harris, P., Glasgow, N.J., Campbell, C., Dath, D., Harden, R.MLong, D.M., Mungroo, R., Richardson, D.L., Sherbino, J., Silver, I., Taber, S., Talbot, M. and Harris, K.A. 2010 'Competency-based medical education: theory to practice', *Medical Teacher*, 32(8), pp. 638–645. Available at: https://doi.org/10.3109/0142159X.2010.501190.

5. Griffin-Shirley, N., Bozeman, L., Nguyen, T., Othuon, V., Page, A., Hahm, Juhyun, Hahm, Juyoung and Lee, J. 2021 'A Survey of Blind Orientation and Mobility Specialists about the Accommodations and Teaching Strategies They Use When Providing Orientation and Mobility Services', *Journal of Visual Impairment & Blindness*, 115(3), pp. 190–203. Available at: https://doi.org/10.1177/0145482X211018000.

6. Griffin-Shirley, N., Bozeman, L., Obiero, N.A., Steinle, K.J. and Page, A. 2019 'Preparation of Orientation and Mobility Specialist Students Who are Blind and Have Low Vision: Survey of Faculty Who Teach Blindfold and Simulation Cane Courses', *Journal of Visual Impairment & Blindness*, 113(4), pp. 355–365. Available at: https://doi.org/10.1177/0145482X19865382.

7. Hiani, K. El 2015 'Distance Learning: Responsibilities and Challenges Facing Educators in the 21st Century', *Journal of Education and Vocational Research*, 6(4), pp. 11–14. Available at: https://doi.org/10.22610/jevr.v6i4.202.

8. Johnson, D.& J.R. 2015 'Cooperative Learning: Improving university instruction by basing practice on validated theory', *Journal on Excellence in College Teaching*, 25, pp. 85–118.

9. Kallio, H., Häggman-Laitila, A., Saarnio, R., Viinamäki, L. and Kangasniemi, M. 2022 'Working towards integrated client-oriented care and services: A qualitative study of the perceptions of Finnish health and social care professionals', *International Journal of Care Coordination*, 25(1), pp. 46–52. Available at: https://doi.org/10.1177/20534345211070652.

10. Koenig, A.J. and Robinson, M.C. 2001 'Online Instruction in Braille Code Skills for Preservice Teachers', *Journal of Visual Impairment & Blindness*, 95(9), pp. 543–557. Available at: https://doi.org/10.1177/0145482X0109500905.

11. OMAA (Orientation and Mobility Association of Australasia) 2023 *Orientation and Mobility Scope of Practice*, *Orientation and Mobility Scope of Practice page 6*. Available at: www.omaaustralasia.com/about/quality-framework/ (Accessed: 15 November 2023).

12. Ovetz, R. 2021 'The Algorithmic University: On-Line Education, Learning Management Systems, and the Struggle over Academic Labor', *Critical Sociology*, 47(7–8), pp. 1065–1084. Available at: https://doi.org/10.1177/0896920520948931.

13. Pregowska, A., Masztalerz, K., Garlińska, M. and Osial, M. 2021 'A Worldwide Journey through Distance Education—From the Post Office to Virtual, Augmented and Mixed Realities, and Education during the COVID-19 Pandemic', *Education Sciences*, 11(3), p. 118. Available at: https://doi.org/10.3390/educsci11030118.

14. Rawashdeh, AI. 2021 'Advantages and Disadvantages of Using e-Learning in University Education: Analyzing Students' Perspectives', *Electronic Journal of E-Learning:* , 19(3), pp. 107–117.

15. The Royal Australasian College of Physicians 2022 Entrustable Professional Activities, EPA 1 - Clinical Assessment, p4-7Available at: https://www.racp.edu.au/trainees/basic-training/curricula-renewal/standards/entrustable-professional-activities/view/epa-1 (Accessed: 15 November 2023).

16. White, M. 1982 'Distance education in Australian higher education — a history', *Distance*

Education, 3(2), pp. 255–278. Available at: https://doi.org/10.1080/0158791820030207.

17. Whiteley, S. and S.E. 2019 Work-integrated learning in universities: final report. Deakin ACT.