

STRENGTHENING WORKFORCE COMPETENCY IN EYE CARE: ALIGNING MALAYSIA'S OPTOMETRY EDUCATION STANDARDS WITH GLOBAL FRAMEWORKS

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ABSTRACT

INTRODUCTION:

Developing a competent eye care workforce requires alignment between national education standards and internationally recognised competency frameworks. In Malaysia, the Optometry Programme Standard addresses local professional and regulatory needs, yet there are opportunities to strengthen its global relevance and policy coherence.

OBJECTIVE:

This review assessed the alignment of the Malaysian Optometry Programme Standard with the World Council of Optometry (WCO) Guide for Optometric Education and identified areas for improvement in competency documentation, curriculum governance, and workforce policy integration.

METHODS:

A narrative review was conducted using documents (2010–2024) related to competency frameworks and optometric education standards. Databases searched included PubMed, Scopus, Web of Science, ProQuest, and Google Scholar, as well as relevant policy documents. A structured screening approach was used to ensure transparency in study selection, including predefined eligibility criteria and iterative reviewer discussions to resolve discrepancies. Findings were synthesised narratively based on thematic relevance rather than statistical aggregation.

FINDINGS:

Both frameworks emphasise core clinical competencies, but differ in structure and specificity. The WCO guide adopts a domain-based model with measurable performance indicators, while the Malaysian standard outlines broader outcomes without explicit competency mapping. Alignment was strongest in ocular health, moderate in refractive error, visual function, and professional practice, and weakest in public health.

CONCLUSION:

Strengthening Malaysia's optometry education through a national, domain-based competency framework would enhance curriculum comparability, accreditation consistency, and workforce readiness. Enhanced alignment with global standards will support health workforce mobility, policy harmonisation, and the long-term quality assurance of optometric education in Malaysia.

KEYWORDS

competency-based curriculum; curriculum mapping; optometric education, quality education

Competency-based education is an outcome-based curricular model that organises a framework of competencies for students to meet healthcare and societal needs.[1] The emergence of competency-based education initiated a global shift in health professions education, with the adoption of standardised competency frameworks to ensure quality and safe healthcare.[2] These frameworks help align professional qualifications across countries, enabling practitioners to possess a minimum set of comparable competencies worldwide.[3] Consequently, global bodies like the World Health Organisation (WHO) promote such frameworks to standardise professional competencies, support global workforce mobility, and enhance the quality of healthcare worldwide.[4]

Within this global context, the World Council of Optometry (WCO) is an international, membership-based, non-profit organisation serving individual optometrists, industry professionals, and optometric organisations. [5, 6] The council facilitates the development of optometry worldwide and supports optometrists in promoting eye health and vision care as a fundamental human right through advocacy, education, policy development, and humanitarian outreach. Recognising the need for consistent competency standards in optometric education worldwide, the WCO developed the Guide for Optometric Education [6], based on the WHO Eye Care Competency Framework [4], to support the advancement of eye care services globally through a unified, competency-driven approach. It is also aligned with the International Labour Organization (ILO 2022) classification of eye care professions.

The WCO Guide for Optometric Education outlines five core curricular domains representing key areas of optometric practice (Table 1).[6] These domains encompass progressive levels of competency development, aiming to prepare graduates for comprehensive, patient-centred care. The curriculum elements are presented as flexible content areas that support multiple competencies, which allow institutions to organise learning into coherent, scaffolded units that facilitate the development of higher-order thinking, clinical reasoning, and professional judgment.

TABLE 1 CORE DOMAINS IN THE WCO GUIDE FOR OPTOMETRIC EDUCATION

Refractive Error: Assessment and Management
Visual Function Assessment and Management
Ocular Health: Assessment and Management
Public Health
Professional Practice

In Malaysia, all higher education providers offering Bachelor of Optometry programmes are required to follow the national programme standard, which serves as a comprehensive framework to ensure consistency, quality, and relevance in optometric education. [7] This standard is enforced through the collaboration of the Malaysian Optical Council (MOC) and the Malaysian Qualifications Agency (MQA), both of which are tasked with maintaining the highest levels of professionalism in optometry practice.

The latest version of the programme standard is Version 2, 2024, titled Code of Practice for Programme Accreditation (COPPA) Undergraduate Optometry Degree/Opticianry Diploma. [7] This revised guideline is designed to help higher education providers develop and continually improve their optometry programs while adhering to both national and international educational requirements. It also provides a structured quality assurance mechanism that encourages institutions to uphold academic excellence and ensure that graduates are capable of meeting the needs of professionals, society, and the healthcare system. The standard outlines seven areas used for programme evaluation: Programme Development and Delivery, Assessment of Student Learning, Student Selection and Support Services, Academic Staff, Educational Resources, Programme Management, and Programme Monitoring, Review and Continual Quality Improvement. Among these, Area 1, Programme Development and Delivery, is particularly significant, as it sets the tone for the overall design of the curriculum.

Within Area 1, the framework outlines the expectation that the Programme Learning Outcomes (PLOs) should define the competencies students are expected to demonstrate upon graduation, and these should align with the Malaysian Qualifications Framework (MQF) domains. The criteria include the ability to examine eyes, detect and manage visual and ocular disorders, prescribe optical devices and vision therapy, deliver low-vision rehabilitation, and engage in research and entrepreneurship. While these competencies reflect key areas of optometric practice, the standard lacks specific, measurable learning outcomes and performance indicators, making it difficult to ensure consistent implementation across institutions. [8,9]

However, this framework grants higher education providers considerable flexibility to design and customise curricula according to their philosophy, available resources, and graduate profile. It implicitly assumes that each institution will independently translate these broad expectations into detailed curricula, incorporating sufficient clinical depth, assessment strategies, and educational approaches to achieve the intended learning outcomes. While such flexibility encourages innovation and contextual relevance, it may also introduce challenges. Without well-defined national benchmarks or measurable indicators, ensuring consistency, comparability, and comprehensive competency coverage across programmes becomes difficult. [10]

Although the Malaysian Optometry Programme Standard covers a broad range of learning outcomes and curriculum areas, it differs in structure, focus, and competency articulation from the WCO Guide for Optometric Education. Published in 2024, the WCO Guide for Optometric Education introduces a detailed, domain-based competency structure to standardise optometric education globally. [6,11] In contrast, the Malaysian Optometry Programme Standard, last revised in 2024, predates the publication of the WCO Guide for Optometric Education. Therefore, differences in emphasis and domain categorisation are expected.

The scope of this review is specifically focused on Malaysian undergraduate optometric education standards, with particular attention given to competency frameworks. The review seeks to answer the following key questions:

1. How do the competency domains outlined in the WCO Guide for Optometric Education align with those specified in the Malaysian Optometry Programme Standard?
2. What are the gaps or inconsistencies between the two frameworks that may impact the international relevance and comprehensiveness of optometric education provided in Malaysia?
3. How do global trends in optometric education, particularly competency frameworks and educational practices from selected countries, provide context for international benchmarking and inform Malaysia's position within the global landscape?
4. To what extent is the WCO framework relevant and applicable within the Malaysian context, and what are the implications for curriculum development?

Contributions from six countries, namely India, Vietnam, Australia, the United Kingdom, Singapore, and Malaysia, were included based on the availability of published documents identified during the search. These countries were selected based on the availability of relevant published documents and their curricular alignment. In particular, several Asian countries included in this review (India, Australia, Vietnam, Singapore, Malaysia) have optometry education systems historically influenced by or aligned with the United Kingdom model, resulting in similarities in curriculum structure, competency frameworks, and training approaches. [7, 12-16] Australia also demonstrates strong historical and structural alignment with the United Kingdom model, particularly in competency-based optometric education and accreditation systems. [17-18] The inclusion of the United Kingdom, therefore, provides an appropriate benchmark for comparison, while Australia offers an additional established international perspective with a similarly mature competency-based regulatory framework influenced by UK educational traditions. [13, 14] Collectively, this selection supports meaningful contextual comparison while reflecting the current evidence base.

METHODS

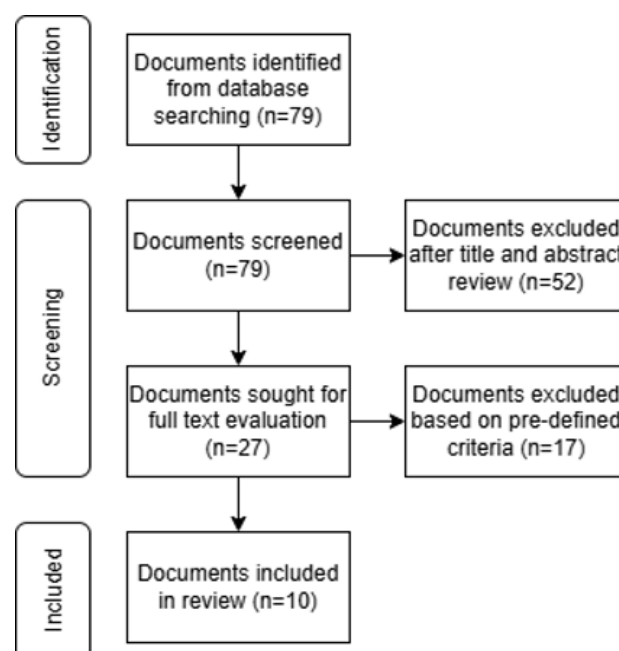
A search for related articles on undergraduate optometric education standards was conducted across the following databases: Google, Google Scholar, PubMed, Scopus, Web of Science, ProQuest, and ResearchGate. A combination of relevant keywords and search strings were used to identify pertinent document, including: "WCO ECCF" OR "World Council of Optometry ECCF", "WHO ECCF" OR "World Health Organization competency framework", "WCO Guide for Optometric Education" OR "WCO education guideline*", "MQA" OR "Malaysian Qualifications Agency", "MQF" OR "Malaysian Qualifications Framework", "COPPA" AND "optometry", "COPPA" AND ("curriculum" OR "program standard*"), "Optometry program standard*" OR "optometry education framework*", "Competency-based optometry curriculum" OR "CBE in optometry", "Optometric education" AND ("India" OR "China" OR "Australia" OR "United Kingdom" OR "UK"), "Optometry education standard*" AND ("India" OR "China" OR "Australia" OR "UK"), "International comparison of optometry education", "Healthcare curriculum mapping" OR "educational alignment in health professions", and "Curriculum mapping" AND "optometry".

A total of 79 records were identified through the database and supplementary searches. These included policy documents, competency frameworks, and curriculum standards; therefore, the term "documents" is used consistently throughout the review rather than referring to empirical studies. A structured screening approach was applied to enhance transparency. Eligibility criteria included relevance to optometric competency frameworks, curriculum mapping, and educational standards (2010–2024). A flow diagram illustrating the study selection process is provided to enhance transparency (Figure 1).

During screening, all 79 records underwent title and abstract review, resulting in the exclusion of 52 records. Inclusion criteria encompassed publications dated between 2010 and 2024; studies focused on optometric or allied health professional education; content addressing competency frameworks, curriculum mapping, or educational standards; inclusion of empirical studies, descriptive reports, policy documents, or document reviews; relevance to undergraduate, postgraduate, or continuing professional development (CPD) education; written in English; and full-text availability. Duplicate publications, articles lacking methodological clarity, studies with no clear relevance to competency-based education models, and non-English language publications were excluded.

Following screening, 27 full-text documents were assessed for eligibility; 17 were excluded based on predefined criteria. A total of ten documents were ultimately included in the final synthesis.

FIGURE 1: FLOW DIAGRAM OF DATABASE SEARCH AND DOCUMENT SCREENING



Document selection was conducted independently by two of the authors. Disagreements were resolved through structured consensus discussions among the authors rather than through formal focus group methodology. This process was conducted iteratively to ensure consistency in study inclusion and thematic synthesis.

RESULTS AND DISCUSSION

Ten main documents were analysed. These comprised two international competency frameworks, six professional or accreditation guidelines, and two educational curriculum sources. Table 2 presents the documents included in this review.

TABLE 2 INTERNATIONAL COMPETENCY FRAMEWORKS, PROFESSIONAL GUIDELINES, AND EDUCATIONAL DOCUMENTS INCLUDED IN THE REVIEW (N=10)

Category	Document/Framework	Country/Region	Citation
International competency framework	WHO Eye Care Competency Framework (WHO ECCF)	International	[4]
	WCO Competency Framework for Optometry	International	[6]
Accreditation guideline	GOC Accreditation and Quality Assurance Handbook (2015)	United Kingdom	[18]
	Indian Entry Level Optometry Competency Skill Standard (IELOCS)	India	[12]
	Model Curriculum Handbook for Optometry (2015–2016)	India	[13]
	Entry-Level Competency Standards for Optometry	Australia	[17]
	Optometry Programme Standard (MQA, 2024)	Malaysia	[7]
	The Global Optometry Resources	Vietnam	[14]
Educational curriculum source	Course subjects taught in Singapore Polytechnic	Singapore	[15]
	Course subjects taught in Ngee Ann Polytechnic	Singapore	[16]

The selected documents represented contributions from six countries: India, Vietnam, Australia, the United Kingdom, Singapore, and Malaysia, reflecting diverse educational systems and competency development approaches. This mix of sources provided a comprehensive view of both global and national perspectives on competency-based optometric education. The documents from WHO ECCF, WCO, India, Vietnam, Australia, the UK, and Malaysia defined optometry as the award of a bachelor's degree or higher from a tertiary education institution. Meanwhile, Singapore Polytechnic and Ngee Ann Polytechnic offer optometry education at the diploma level rather than the bachelor's degree level, reflecting a different entry qualification pathway compared to the international competency frameworks and other university-based optometry programs.

Alignment and Divergence Between the WCO Guide for Optometric Education and the Malaysian Optometry Programme Standard

The analysis shows partial to moderate alignment between the WCO Guide for Optometric Education and the Malaysian Optometry Programme Standard (Table 3). Both aim to prepare entry-level optometrists. However, the WCO framework is more structured, as it provides clearly defined competency domains, detailed skill expectations, and measurable performance indicators for curriculum delivery and assessment. [6] In contrast, the Malaysian standard uses broader programme learning outcomes and competency descriptions aligned with the Malaysian Qualifications Framework and national higher education requirements. [19] This leads to differences in clarity and measurability rather than core content. [1,2]

In the three clinical domains (refractive error, visual function, and ocular health), there is strong conceptual overlap. Both frameworks include refraction, binocular vision, ocular disease management, and contact lenses. However, the WCO framework defines skills in more detail and shows clearer progression of competencies [6]. For example, it outlines specific competency elements, performance criteria, and related curriculum content for each clinical skill. The Malaysian standard remains general and does not clearly define performance levels or a structured skill development framework, especially in advanced areas such as myopia management and rehabilitation. [7] This indicates that while clinical intent is aligned, the depth of competency articulation differs significantly between the two frameworks.

Divergence between the WCO framework and the Malaysian standards is found in the non-clinical domains. The WCO framework explicitly includes public health, epidemiology, health systems, communication, teamwork, and digital health [4,6]. In the Malaysian standard, these areas are either absent or only indirectly mentioned. Although the Malaysian standard includes ethics, professionalism, and community service, these areas are not clearly structured as competencies. [3,11] This reduces clarity in assessing graduate capability in these non-clinical domains and highlights a gap in the formal recognition of broader professional roles.

Overall, the competency domains in the WCO Guide for Optometric Education show partial to moderate alignment with those in the Malaysian Optometry Programme Standard. Both frameworks cover core clinical domains such as refractive error management, visual function assessment, and ocular health, indicating strong conceptual agreement in preparing entry-level optometrists. However, the WCO framework presents these domains in a more structured and detailed manner, with clearly defined competencies and performance criteria, whereas the Malaysian standard presents them through broader programme learning outcomes without explicit performance indicators. Non-clinical domains such as public health, communication, and professional practice also align with intent but are more comprehensively and explicitly articulated in the WCO framework.

TABLE 3: MAPPING OF THE WCO GUIDE FOR OPTOMETRIC EDUCATION TO THE MALAYSIAN OPTOMETRY PROGRAMME STANDARD

WCO Domain	WCO Competencies	Corresponding Elements in Malaysian Standard	Alignment Level	Identified Gaps
Refractive error: assessment and management	Subjective & objective refraction, prescribing and dispensing spectacles/contact lenses, myopia management	Refraction, dispensing, contact lenses, and low vision care	Moderate	No explicit emphasis on individualised corrective plans or structured myopia management approaches
Visual function assessment and management	Binocular vision, oculomotor function, accommodation, visual perception, low vision, workplace vision care	Binocular vision, paediatric optometry, low vision, community optometry	Partial	Limited documentation of training in oculomotor function, visual perception, and structured rehabilitation protocols
Ocular health: assessment and management	Evaluation of anterior/posterior ocular structures, OCT, therapeutic pharmaceutical agents, ocular emergencies	Diagnostics, ocular disease, pharmacology, basic ocular therapeutics	Contextually aligned	Competency in pharmacological management is limited by national scope (per the Optical Act 1991)
Public health	Social determinants of eye health, epidemiology, community outreach, health systems	Community optometry, public health projects, limited outreach training	Low to Moderate	No defined public health competencies; lacks epidemiology, systems-based practice, and measurable population health outcomes

Professional practice	Ethics, patient communication, record-keeping, legal compliance, interprofessional collaboration	Governance, legal and ethical topics, professionalism	Partial	Absence of explicit competencies in patient communication, empathy, interprofessional teamwork, and digital health readiness
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Gaps Between the WCO Framework and the Malaysian Standard: The Impact on Malaysia's Global Standing in Optometric Education

Table 4 summarises the curriculum gaps between the WCO framework and the Malaysian standard. The WCO framework groups competencies into defined domains with performance expectations, which supports standardised assessment. [6,17] This would lead to a more structured curriculum planning, competency-based teaching, and uniform assessment across different training institutions and clinical settings. In contrast, the Malaysian system allows interpretation at the institutional level, enabling Malaysian universities to adapt curriculum delivery to local educational priorities, available resources, and clinical training environments. [3,10]

Another gap is the limited definition of public health and professional skills in the Malaysian standard. The WCO framework includes population eye health, epidemiology, communication, teamwork, and digital readiness as core competencies. [4,6] In the Malaysian standard, these areas are present in teaching but are not clearly defined as measurable outcomes. [7] Although this provides Malaysian institutions with the flexibility to integrate professional and public health elements into their curricula through diverse teaching and assessment approaches, the absence of a clear domain-based structure and measurable indicators in the Malaysian framework may result in differences in how competencies are implemented and assessed across institutions. It could also make these competencies less visible within graduate competency profiles and curriculum evaluation processes.

In addition, the Malaysian regulatory scope also influences the design of the optometry curriculum. In Malaysia, the Optical Act 1991 limits the scope of clinical practice; Section 31 of the Act restricts the use of drugs for vision examination to medical practitioners, although registered optometrists may use selected drugs for refraction, provided they are approved by the Malaysian Optical Council. [20] This limits the extent to which clinical competencies can be developed in the Malaysian optometry curriculum compared to countries such as the UK and Australia, where the scope has expanded alongside education reforms [5, 21]. Such regulatory differences highlight how policy environments directly shape educational outcomes and expectations for competency frameworks.

Overall, the main gaps between the two frameworks lie in differences in structure, measurability, and regulatory framing rather than in core clinical content. While Malaysia demonstrates strong coverage of fundamental optometric competencies, the WCO framework provides a more explicit domain-based structure with clearly defined performance indicators that support consistent assessment and international comparability. The Malaysian framework relies more on broader outcome statements and institutional interpretation, which may lead to variation in how competencies are operationalised and assessed. In addition, public health and professional practice skills are less explicitly defined as measurable outcomes in Malaysia, reducing their visibility within competency profiling. Regulatory constraints also shape the extent of clinical competency development, particularly in therapeutic practice. Collectively, these differences may influence the international comparability and comprehensiveness of Malaysian optometric education, particularly regarding standardisation and holistic competency documentation.

Global Trends and Benchmarks for Malaysian Optometric Education

Globally, optometric education is moving towards competency-based models that focus on measurable skills, aiming to improve workforce readiness and standardisation. Competency-based education is widely supported in health

professions, although implementation varies across systems. [1,2] This global shift provides important context for interpreting national differences.

Countries such as the UK and Australia have well-developed competency systems in which education, accreditation, and professional practice are closely linked (Table 5). [18,21] These systems also show that education reforms have supported expansion of clinical roles over time, including advanced practice and prescribing rights. [5,11] This reflects a strong integration between competency frameworks and workforce evolution.

In contrast, India, Vietnam, and Singapore show developing or transitional systems, meaning that their optometry education frameworks are evolving towards more competency-based and standardised models, but implementation is still being refined across institutions and regulatory structures. For example, in Vietnam, optometrists are generally trained at the Bachelor's degree level within university-based programmes, although the profession is still in its early stages and is undergoing ongoing structural and regulatory refinement. [22] These countries also include core clinical competencies but have less consistent coverage of public health and professional practice domains. This may affect the extent to which graduates are uniformly prepared in areas such as interprofessional collaboration, population eye health, communication, and healthcare systems practice when compared with more fully standardised international competency frameworks.

Implementation also varies across institutions due to differences in resources and regulations, as well as the adoption of competency-based education principles. [12,15,22] For example, differences in clinical training facilities, access to specialised equipment, faculty expertise, institutional priorities, and national regulatory requirements may influence how competency-based education is delivered and assessed across programmes.

In addition, regulation plays a major role in shaping optometry education and professional training. Scope-of-practice laws influence the range of clinical skills that can be taught, assessed, and practised within each country. In Malaysia, the Optical Act 1991 limits certain aspects of clinical practice, particularly the use of drugs for vision assessment and related procedures. [20] As a result, educational programmes are designed within these legal boundaries. In contrast, countries such as the United Kingdom and Australia have gradually expanded optometric practice roles through regulatory developments that evolved alongside educational advancement and competency training [17-18]. This demonstrates the close relationship between education and policy, where educational frameworks not only respond to existing regulations but may also support future professional development and scope expansion.

Across systems, benchmarking is most useful as a tool for improvement rather than direct adoption, meaning that international frameworks are better used to identify strengths, gaps, and areas for curriculum enhancement rather than implemented unchanged within another educational system [19,23]. Global frameworks provide guidance but must be adapted to local contexts, as differences in healthcare systems, scope-of-practice regulations, educational structures, workforce needs, and available resources influence how competencies are taught and applied in each country [10,23]. Therefore, international standards function more as reference points than prescriptive models.

Globally, optometric education is increasingly shaped by competency-based frameworks that emphasise measurable outcomes, structured skill domains, and integration with clinical practice, providing a clear basis for international benchmarking. These global trends provide a comparative reference that helps position Malaysian optometric education within the international landscape. As a result, international frameworks may inform Malaysia's curriculum development by highlighting areas for refinement and reinforcing its ongoing progression towards a more structured competency-based education system.

TABLE 4. STRUCTURAL AND CONTENT GAPS BETWEEN THE WCO GUIDE FOR OPTOMETRIC EDUCATION AND THE MALAYSIAN OPTOMETRY PROGRAMME STANDARD

Identified Gap	Description	Implications
Absence of domain-based structure	The Malaysian standards adopt a flexible structure that is not explicitly aligned with clinical or functional domains.	Reduces clarity in curriculum planning, delivery, and assessment; hampers direct benchmarking.
Lack of performance indicators	Learning outcomes in the Malaysian framework are presented in broad terms, allowing for adaptable interpretation.	Hinders objective assessment of student competency; reduces transparency in meeting minimum standards.
Underdeveloped public health focus	Community service is acknowledged, providing a foundation for expanding structured content in epidemiology and health systems.	Limits graduate preparedness for population-based care, health promotion, and multidisciplinary collaboration.
Limited emphasis on professional soft skills	The current framework provides an opportunity to further develop areas such as communication, empathy, and digital readiness.	May result in graduates lacking essential readiness for workplace and patient care in modern clinical settings.
Scope-of-practice constraints	The WCO competencies extend beyond current legal prescribing rights in Malaysia, highlighting areas for future policy alignment.	Necessitates local adaptation of the WCO framework; may affect recognition of its full scope in international settings.

TABLE 5. NATIONAL OPTOMETRY COMPETENCY FRAMEWORKS IN SELECTED COUNTRIES AND THEIR ALIGNMENT WITH WCO GUIDELINES

Country	National Framework	Source	WCO Domain Coverage	% Domains Covered	Key Features
India	Model Curriculum Handbook for Optometry (2015–2016) – Ministry of Health and Family Welfare, India.[13] Ministry of Health and Family Welfare. Allied Health Section. Model curriculum handbook: optometry. New Delhi: MoHFW; 2016. Indian Entry Level Optometry Competency Skill Standard (ASCO 2021) – Association of Schools and Colleges of Optometry.[12] Association of Schools and Colleges of Optometry. Indian Entry Level Optometry Competency Skill Standard (IELOCS). 2021.	Developed by ASCO; partially adapted from WCO model	Refractive Visual Ocular Health	60%	Competency-based education; partial standardization across institutions
Vietnam	Optometry training programme via international	Brien Holden Foundation, Pham	Refractive Visual	60%	WCO-informed with global expert input;

	collaboration. Brien Holden Foundation. [14] Global Optometry Resources [Internet]. Sydney (NSW): Brien Holden Foundation.	Ngoc Thach University, HCMC Eye Hospital; WCO-informed	Ocular Health		local adaptation required
Australia	Entry-Level Competency Standards for Optometry.[17] Hamlyn BR, Hart KM, Kiely PM, et al. Entry-level competency standards for optometry 2022. Clin Exp Optom. 2025;108(3):380–393.	Developed with stakeholder feedback; submitted to WCO for review	Refractive Visual Ocular Health Public Health Professional Practice	100%	Detailed guidance; aligned to WCO; includes independent prescribing
United Kingdom	Accreditation and Quality Assurance Handbook (General Optical Council 2015).[18] General Optical Council. Accreditation and quality assurance handbook: routes to registration in optometry. London: GOC; 2015.	Overseen by General Optical Council; WCO-informed	Refractive Visual Ocular Health Public Health Professional Practice	100%	Comprehensive national standards; detailed public health & professional skills documentation
Singapore	Singapore Polytechnic. Optometry course information.[15] Ngee Ann Polytechnic.[16] Diploma in Optometry programme information.	Public documentation limited; domain-oriented	Refractive Visual Ocular Health	60%	Domain-based, partial WCO alignment; prescribing restricted
Malaysia	Optometry Programme Standard (MQA 2024).[7] Malaysian Qualifications Agency. Code of practice for programme accreditation: optometry programme standards. Petaling Jaya: MQA; 2024.	MQA 2024	Refractive Visual Ocular Health	60%	General learning objectives; lacks unified entry-level competency framework; institutional QA varies

Relevance of the WCO Framework to the Malaysian Context and Implications for Curriculum Development

The WCO competency framework is a globally recognised reference for entry-level optometric competencies and is relevant as an aspirational benchmark for Malaysia. [6] Its domain-based structure provides a clear view of modern optometric practice, covering clinical care, public health, and professional responsibilities. In Malaysia, the framework is relevant in principle as it supports global standardisation and workforce mobility. However, direct adoption is limited by differences in education structure and national regulatory requirements. The Malaysian Optometry Programme Standard follows an Outcome-Based Education (OBE) model aligned with the Malaysian Qualifications Framework, focusing on local healthcare needs rather than global benchmarking. [7]

A key limitation to the direct use of the WCO framework is differences in the scope of practice across countries. In Malaysia, the Optical Act 1991 restricts therapeutic prescribing and certain advanced clinical tasks. [20] In contrast, countries such as Australia and the United Kingdom have expanded optometric roles through regulatory changes, enabling broader clinical responsibilities within competency-based education systems. [5,21] In these countries, changes in education have often come before changes in regulation, supporting the gradual expansion of practice. Overall, Malaysia's approach reflects a regulation-aligned education system that ensures safe, standardised practice while providing a stable foundation for future competency and scope development.

This creates a gap between training and clinical practice. Although Malaysian students may learn competencies aligned with global expectations, not all skills can be fully applied in practice due to legal limits. This may lead to underuse of graduate abilities and limit the development of advanced clinical roles. It also shows the need to align both curriculum design and regulatory frameworks so that education translates into actual workforce capability. Without this alignment, competency-based education may remain strong in theory but limited in practice. [3,11]

From a curriculum perspective, the findings support adapting the WCO framework rather than adopting it directly. A hybrid approach is more suitable, where WCO domains are mapped onto the Malaysian OBE structure, rather than fully replacing one with the other. This can improve clarity, consistency, and international comparability. Priority should be given to strengthening areas that are less clearly defined in the Malaysian standard, such as public health optometry, digital health, and interprofessional collaboration. [6,11] Adding clear performance indicators would also improve assessment and make competency achievement more consistent across institutions. [17]

Future changes should be introduced in stages. The first step is to map the curriculum and identify gaps. The next step is refining learning outcomes and assessments based on competency principles. The final step involves working with regulatory bodies and professional stakeholders to ensure that any curriculum changes align with potential scope-of-practice updates. This gradual approach allows improvement without disrupting existing systems while moving towards international alignment. [10,23]

A wider implication of this study is that education can influence future policy. In countries such as the United Kingdom and Australia, developments in competency-based education have supported the later expansion of optometric roles and regulatory change [5,21], showing that education can help drive policy development. In Malaysia, strengthening competency-based education may similarly support future discussions on scope expansion and workforce development.

In summary, the WCO framework is relevant to Malaysia as a reference for improving optometric education. However, its use must consider the local education structure and regulatory limits. A contextualised alignment approach is more appropriate than full adoption. Mapping global competencies into the Malaysian framework can improve clarity, strengthen graduate readiness, and support gradual progress towards international standards.

LIMITATIONS

Although this review provides a structured competency mapping, certain limitations should be acknowledged. It employed elements of narrative synthesis to interpret the findings, introducing subjectivity. It is also focused on policy documents and official guidelines, which may have excluded non-English or unpublished materials. Consequently, the findings represent a structured synthesis of policy-level evidence rather than an exhaustive account of global optometric education standards.

CONCLUSION

With its domain-based design, clearly defined performance indicators, and international alignment with the WHO Eye Care Competency framework, the WCO Guide for Optometric Education serves as a practical tool for curriculum planning, assessment, and accreditation. The Malaysian Optometry Programme Standard, while aligned with national regulatory and professional requirements, would benefit from enhanced clarity in defining competencies and stronger

structural alignment with international benchmarks such as the WCO guideline. This review provides a foundational step toward reform, offering direction for future curriculum revisions, institutional benchmarking, and regional collaboration.

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