

Shaping Sustainable Real Estate Education: A Critical Analysis of Pedagogical Evolution

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ABSTRACT

Real estate education has become an important study that aims at fostering sustainable development. Building and city constructions also contribute extensively to climate change, which is why real estate professionals need to be educated to find environmentally friendly solutions. This paper explores the historical development of real estate pedagogy, focusing both on its past and current pedagogical practices, and the emerging tendencies to help make the program more sustainable and future-ready. It is conducted using a qualitative research method (based on academic literature, national education policy, and international report findings of countries like Malaysia, the UK, the USA, Singapore, and Hong Kong). The results indicate the development of a clear preference towards practice-oriented learning, growing adoption of technology in education, and interdisciplinary approaches that take into consideration the principles of sustainability. Nevertheless, some aspects need to be improved, including the flexibility of curricula, collaboration between industry and academia, and the presence of a variety of environmental views. To be aligned with both national and global goals, the argument of this paper is that real estate education needs a revamp to prepare future professionals with the relevant knowledge, skills, and understanding of ethics to assist in achieving sustainable development in urban areas. It is synthesized with recommendations of policy and curriculum development with a view to bolstering the real estate education system in Malaysia so that it can respond effectively to environmental demands and create a positive impact towards a sustainable built environment.

Keywords: Real Estate Education, Pedagogy, Sustainability, Curriculum Reform

INTRODUCTION

Real estate education has undergone significant changes over the years. Initially, it involved basic training where apprentices learned about land transactions, property evaluation, and property law. However, as the industry became more complex and the market required a deeper understanding of rules and sustainable practices, this approach to education evolved. The introduction of university-based real estate degrees in the mid-20th century marked a dramatic shift from informal, apprenticeship-style education to a more structured curriculum that combines academic rigour with practical relevance.

Today, real estate professionals are compelled to work in an environment that has become ever more complicated because of the problem of climate change and rapid digitalization (Lop et al, 2024). The buildings that we construct and operate play a crucial role in the issues concerning the environment, such as greenhouse gas emissions and poor land usage. It is a fact that puts real estate professionals in the centre of promoting a sustainable effort and align their activity with the internationally recognised UN Sustainable Development Goals, and other environmental regulations.

Real estate programs should innovate with the rise in the importance of education, since it determines the future generation of workers. They are not only training a generation of students to feel equipped as capable technicians,

but they must also train a new generation of professionals to be ethically responsible, environmentally aware, and socially engaged. This discussion touches on the significance of real estate education, including the extensive scope of sustainability. Program design can play a critical role in enabling the industry to support sustainable urban development, invest responsibly, and be resilient to the challenges of climate change. In Malaysia, the move of the country towards a knowledge-based and low-carbon economy, and its courses are condensed in efforts like the Malaysian Education Blueprint and the Shared Prosperity Vision 2030, making the issue of sustainability in real estate education even more critical.

Based on this, this paper has three aims:

- To follow the evolution of real estate pedagogy historically and highlight the role of the shift towards university-based pedagogy and the inclusion of subjects regarding sustainability in steps.
- To assess current practice regarding teaching methods in undergraduate real estate courses and especially those engaging experiential training, digital transformation, and environmental-social governance (ESG) models.
- This will help to review ongoing trends and prospects of real estate education in Malaysia and other countries in the world, on how the pedagogical approach can be more congruent with the goal of sustainability in the built environment.

The research will use a qualitative desktop research methodology to meet these objectives. It combines the information found in academic literature, country policy reports (e.g., Malaysian Qualifications Framework, BOVAEP guidelines), international benchmarking reports, and best practices in the most successful institutions in the UK, US, Singapore, and the EU. The paper will provide a contextualized pedagogical framework contributing towards curriculum reform, institutional policy, and strategic alignment with the imperatives of sustainable development in the higher education sector in Malaysia through a critical comparative analysis.

Framing Sustainability in Real Estate Education

The concept of sustainability in real estate education involves two key components. First, it pertains to the sustainability of the educational program itself, ensuring that it continues to produce well-prepared graduates who meet the learning outcomes outlined by Outcome-Based Education (OBE) and national standards. This requires up-to-date curricula, skilled faculty, and adequate resources, while remaining responsive to industry changes.

Second, it focuses on integrating sustainability principles into coursework, preparing students to tackle environmental, social, and governance (ESG) challenges in the built environment. Additionally, an integration of technology in the syllabus is highly crucial. Graduates should be equipped for roles in sustainable and technology of urban development, energy conservation, ethical investing, and creating affordable housing that positively impacts communities.

These two elements are interconnected. A program providing solid academic training without addressing technological advancement, environmental, and social issues may produce competent graduates who lack broader awareness. Conversely, a curriculum that emphasises sustainability without economic viability is also ineffective. Thus, real estate education must balance institutional integrity with technology and sustainability-oriented learning, guiding discussions on how undergraduate curricula in Malaysia and similar regions are evolving to meet sustainability challenges.

Figure 1 illustrates the Conceptual Framework on the pedagogical transformation path

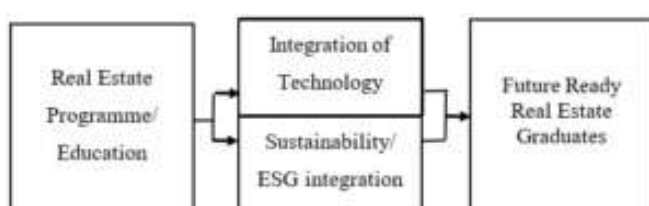


Figure 1: Conceptual Framework on pedagogical transformation path

Understanding Pedagogy and its Relevance to Real Estate Education

Pedagogy is the art and science of the philosophical, theoretical, and practical knowledge of the system of passing knowledge from the person conducting the teaching process to the other who is seeking knowledge. It is more than instructional techniques, but establishing critical thinking, creativity, ethical thinking, and adaptability (Loughran, 2013). Pedagogy in real estate education defines how real estate learners appreciate such terms as property valuation and market analysis, urban sustainability, and laws. The impact is evident in the ability of learners to employ the concepts in real-world and narrating situation scenarios, which is a major impact of a profession that is highly impacted by market volatility, legal compliance, and the changing nature of society (Poon, 2013).

The higher education system of Malaysia (under the Ministry of Higher Education (MOHE) focuses on outcome-based education (OBE) and graduate employability. This is a further argument in support of the incentive to match pedagogy in real estate training with academic, as well as industry needs and expectations, including professional qualification (e.g., BOVAEP), and educational aspirations (e.g., Malaysian Education Blueprint 2015-2025).

Historical Development of Real Estate Pedagogy

The Real estate education pedagogy has been mechanised according to socio-economic development, market, and institutional maturity and sophistication. This historical trajectory is important in order to understand the present pedagogical innovations and to forecast future needs in terms of training real estate professionals. The section critically examines historical changes of the real estate pedagogy, eruditely covering how the pedagogy evolved in the early stages, the academic institutionalization, and its future maturation to a specialized pedagogy.

Early Foundations (Pre-20th Century)

Early real estate education was informal and based on experience, such that knowledge was usually passed on to apprenticeship and professional guilds. These training regimens could be regionally particular and were highly dependent on tacit information and were based on land tenure systems, rudimentary valuation techniques, and property entitlements, especially in agrarian and colonial settings (Ball, Lizieri, & MacGregor, 2012). There was little pedagogical content, and what was there was mainly practical, showing how little the professions of property were institutionalized at this time.

Pedagogy at this period was marked by the absence of theory and academic scrutiny. Customary knowledge formed the foundation of real estate practice as tradition rather than systematic education informed real estate practice (D'Arcy & Keogh, 1999). Although adequate in its own time, this basis proved less and less acceptable as the pressures of urbanization, industrialization, and modern capital markets required a more analytical and generalized treatment of knowledge of property.

Formalization of Academic Programs (Mid-20th Century)

Real estate studies were formalized in the system of university education during the mid-20th century in the United States and the United Kingdom. It opened real estate as a sub-major, and the program involved the course in real estate in areas that included valuation of real estate, real estate investment research, land-use economics, and real estate legal procedures (Eppli & Tu, 2008). Licensing and professional standards also became more formalised during such period, requiring more academic preparation by practitioners.

One of the remarkable pedagogical transformations of the time was the introduction of the case study approach, particularly in institutions such as the Harvard Business School which contributed the establishment of the use of the problems in an actual business context to generate critical-thinking and mastery units of business financing and development of real-estates (Warren, Peterson, Neil, 2012). This kind of technique gave students the possibility to combine theoretical approaches and practical judgment making and develop a deeper understanding of the mechanisms of market life.

At such a level, criticism, however, tallied to the fact that most curriculum was still geared technically towards

valuation and legalistic studies with little or no attention given to the broader socio-economic and urban development realms (Geltner et al., 2007). So, even though real estate education had been given the academic legitimization, it was actually still at an adolescent level regarding scale and interdisciplinary nature.

Expansion and Specialization (Late 20th Century – Early 2000s)

This period of rapid growth and specialisation of education to real estate that opened with the 1980s in real estate markets has globalised around the world and the new forms of real estate activities have come about through financial innovation. Undergraduate and graduate programs, such as Bachelor of Science (BSc) and Master of Real Estate (MRE) originated, particularly in the USA, Australia, and some regions of Asia, with general program plans that integrated finance, law, economics, urban planning, and sustainability (Pagliari, 2014).

It was also at this period that the financial disciplines started to take over through Real Estate Investment Trusts (REITs) and mortgage-backed securities, which necessitated integration of more financial modelling and risk evaluation into the teaching (Graaskamp, 1991; Black & Rabianski, 2003). This has caused real estate education to respond, and real estate education has now come to reflect the innovations within the financial markets that depend on other fields like econometrics, portfolio theory, and urban economics.

Secondly, due to the increasing environmental and social concerns, the idea of sustainability has been included in real estate studies, green building rating schemes, and ethical problems of real estate in the mapping of the curricula. It was a part of the bigger transition towards interdisciplinary and holistic practices, the resonance with emerging global prospects, including Sustainable Development Goals (SDGs) (Ionaşcu et al, 2020).

In these processes, there was the continuity of inequalities among countries and institutions. The top programs of developed economies became adaptive, but in the building countries, the scenario was not so triumphant as there was the rapid adoption of new curricula, and there ought to have been benchmarking and globalisation of real estate education (Baharum et al., 2024).

Table 1. Summary of Historical Development of Real Estate Pedagogy

Period	Pedagogical Characteristics	Key Content Areas	Limitations
Pre-20th Century	Informal, apprenticeship-based	Land rights, basic valuation, customary law	Lack of theory, localized knowledge
Mid-20th Century	Formalized academic programs within business schools	Valuation, real estate law, investment analysis, case studies	Narrow scope, limited interdisciplinarity
Late 20th – Early 2000s	Specialized real estate degrees and interdisciplinary curricula	Finance, urban planning, sustainability, REITs, ethics	Uneven global adoption, slow curricular reform in some regions
Pre-20th Century	Informal, apprenticeship-based	Land rights, basic valuation, customary law	Lack of theory, localized knowledge

Contemporary Pedagogical Approaches

To support the dynamic nature of real estate education in response to the dynamically changing ways in which the industry operates, modern-day pedagogy is tending to be more learner-centred, interdisciplinary, and technologically superior. These recent approaches are aimed at establishing the distance between academic knowledge and real-life application, where graduates are highly professional and ethically sound.

Experiential and Active Learning

Its experiential learning has come out as a central teaching approach in real estate training. The Harvard Business School methodology adaptation called case-based learning enables learners to work with real-life cases, which promotes cognitive thinking, ethical dilemma reasoning, as well as the ability to apply theory to the difficult

situations of decision-making (Pagliari, 2014). As an example, the analysis of the unsuccessful property development projects or massive land deals in the political arena could be performed by assessing the projects in terms of legislation, economy, and even city planning.

Role plays and simulations also increase participation in the form of simulating real estate negotiations and feasibility analysis of projects and making investments. These modalities not only enhance problem-solving, but they also shape and develop the negotiating, leading, and communication skills, which are the necessary skills when handling the industries (Warren, Peterson, Neil, 2012). In addition, guided internships and formal affiliations with real estate companies have turned out to be a usual part of most curricula, providing students with informal training and building professional identity (Black & Rabianski, 2003).

Technology Integration

Technology is reshaping the shape of real estate pedagogy. PropTech tools, Geographic Information Systems (GIS), ARGUS, and CoStar integration have become common in major programs in the United States, Great Britain, and Singapore (Geltner et al., 2007; Baharum et al., 2024). The tools enable the study of spatial analysis, financial modelling and data-driven valuation and expand analytical capability and market knowledge.

Using VR/AR technology to provide immersive learning is being implemented. As some examples, students will be able to carry out digital inspection of properties, structure 3D models of developments, or AR zoning impact simulations, thereby enhancing their spatial reasoning and conceptual understanding of design (Ionascu et al., 2020). Future-proof technologies such as blockchain and smart contracts are also introduced into the curriculum, teaching students how to learn the technology of property transactions and digital registries of the future (Ionascu et al., 2020).

Interdisciplinary Learning

The nature of the real estate practice needs to extend beyond the traditional knowledge. Interdisciplinary formats where finance, law, urban studies, and environmental science are combined are getting more priority. As an example, capstone projects may involve students working as teams in preparing feasibility studies of mixed-use developments with a synthesis of economic feasibility, legal and regulatory, environmental, and design analyses (Ball et al., 2012; D'Arcy & Keogh, 1999).

This style of studying promotes systems thinking in which the learners can discover the interrelationship in the built environment. It also emulates what happens in real-life development when multidisciplinary work is the norm in practice.

Industry-Aligned Curriculum

Contemporary programs emphasize alignment with industry standards and expectations. Guest lectures and mentorships involving practicing professionals offer students current insights and foster stronger university-industry links (Eppli & Tu, 2008). Many programs now embed professional certifications—such as Registered Professional Real Estate (BOVAEP), Royal Institution of Chartered Surveyors (RICS), or other related Professional Bodies within their curriculum to enhance employability and professional recognition.

Another growing focus is the incorporation of Environmental, Social, and Governance (ESG) principles into core modules. Real estate students are increasingly expected to understand the implications of sustainability and responsible investment, especially considering global climate challenges and regulatory shifts in ESG disclosure (Ionaşcu et al., 2020). This alignment reinforces not just technical competency, but also ethical stewardship and social responsibility.

Table 2. Contemporary Pedagogical Approaches in Real Estate Education

Pedagogical Strategy	Description & Tools	Key Outcomes	Reference(s)
Experiential Learning	Case studies, simulations,	Critical thinking,	Pagliari (2014); Warren,

	internships	decision-making	Peterson, Neil (2012)
Technology Integration	GIS, ARGUS, CoStar, VR/AR, Blockchain	Technical proficiency, future readiness	Geltner et al. (2007); Ionaşcu et al. (2020)
Interdisciplinary Learning	Finance, law, urban planning, and environmental science	Systems thinking, collaboration	Ball et al. (2012); D'Arcy & Keogh, (1999)
Industry-Aligned Curriculum	Guest lectures, certifications (RICS, CCIM), ESG focus	Industry relevance, employability	Eppli & Tu (2008); Baharum et al. (2024)

Comparative Pedagogical Benchmarks by Country in Real Estate Education

The development of education in real estate has substantial variations in different areas of the world due to national prerogatives, market complexity, legal frameworks, and teaching ideologies. When the pedagogical practices in several countries, including Malaysia, the United Kingdom (UK), the United States (US), Singapore, Hong Kong and the European Union (EU) are compared, it is not only seen that there is a convergence in the global norms but also the localization of these pedagogical practices.

Malaysia

In Malaysia, real estate education has traditionally focused on theoretical knowledge, emphasising valuation, property law, and land economics. Various universities, both public and private, offer accredited programmes recognised by the Board of Valuers, Appraisers, Estate Agents and Property Managers (BOVAEP). However, there are concerns that the curricula often lack integration of technology, environmental, social, and governance (ESG) principles, and practical industry experience (Palm & Staffansson, 2018). Efforts are underway to reform teaching methods to incorporate ethics, sustainability, and soft skills to meet international standards (Baharum et al., 2024).

United Kingdom (UK)

The UK is recognised as a leader in property education, particularly for those affiliated with the Royal Institution of Chartered Surveyors (RICS). Notable institutions like the University of Reading, Heriot-Watt University, and the University of Cambridge offer programmes focused on critical thinking, problem-based learning, and professional development (RICS, 2023). Their curricula often integrate finance, city planning, and sustainability, along with rigorous evaluations and internship requirements. Additionally, there is a strong industry-academic partnership that supports apprenticeships and RICS pathways within these programmes (Sayce et al., 2022).

United States of America (USA)

Real estate education in the US primarily takes place in business schools, with top programmes at the University of Pennsylvania (Wharton), University of Southern California, and MIT. The training focuses on case-based learning, quantitative modelling, and entrepreneurial thinking. Proficiency in tools like ARGUS and CoStar is standard. Students benefit from project-based coursework, real estate funds managed by peers, and industry mentorships. This model promotes flexibility and innovation, aligning education with the rapidly changing real estate market.

Singapore

Singapore's education system for real estate, primarily led by the National University of Singapore (NUS), is interdisciplinary. It combines real estate finance, law, smart city, and urban planning. The curriculum includes digital simulation tools, cross-border case studies, and emphasises Asian real estate markets (Chia & Pong, 2015). Singapore's strong position in the real estate sector fosters effective collaboration between government, academia, and industry, integrating ESG themes and PropTech into core courses.

Hong Kong

Hong Kong's real estate education is influenced by its status as a global financial centre and limited land availability. Institutions like the University of Hong Kong and Hong Kong Polytechnic University offer courses on land policy, property management, and real estate investment, often focusing on public-private partnerships (Lan & Yang, 2020). The programmes reflect the city's unique multicultural and bilingual environment in law and socioeconomic issues. However, scholars have noted challenges in balancing theory and practice and emphasise the need to align more closely with global sustainability standards (Yao et al, 2025).

European Union (EU)

The EU has varied approaches to real estate education, recently aligned by the Bologna Process to standardise degree structures. Notably strong programmes in urban development, housing policy, and real estate finance are offered in Germany, the Netherlands, and France. Teaching methods emphasise research-informed pedagogy, interdisciplinary collaboration, and the impact of the European Green Deal on the built environment. Additionally, ESG, the circular economy, and digital transformation are increasingly integrated into curricula.

Table 3 summarises the pedagogical benchmarking by country. This analysis highlights both similarities (e.g., ESG, technology integration, experiential learning) and differences (approaches to pedagogy) in real estate education. These insights can guide the restructuring of Malaysian real estate education to make it more competitive internationally while being responsive to local needs.

Table 3. Pedagogical Benchmarking by Country

Country/ Region	Key Pedagogical Features	Tools & Methods	Notable Institutions	Challenges/ Opportunities
Malaysia	Theoretical, BOVAEP-driven, ethics in development	Valuation. Land law,	UM, UiTM, UTM, UTHM, TAR UMT,	Limited tech/industry integration
UK	RICS-accredited, industry-integrated	Case studies, PBL	Reading, Heriot-Watt	High global benchmark
US	Entrepreneurial, quantitative, tech-heavy	ARGUS, funds, internships	Wharton, USC, MIT	Market-driven, innovative
Singapore	Holistic, regional, smart cities	Cross-border, ESG, VR/AR	NUS	Strong policy-academic synergy
Hong Kong	Land policy & finance focus	Public-private, bilingual	HKU, PolyU	Balance between theory & practice
EU	Sustainability, urban planning focus	Interdisciplinary, Green Deal	TU Berlin, ESSEC, ULI	Varied, policy-led innovation

Emerging Trends and Future Directions in Real Estate Education

The real estate education environment is experiencing a rapid change of pace due to the effects of technological changes, globalization, changing employer demands, and the necessity of building a higher degree of resiliency in the face of market instabilities. The changes not only redefine how pedagogical frames are being delivered but also increase the competencies of graduates in the dynamic, competitive real estate world.

Digital Transformation in Real Estate Education

Real estate knowledge is being redefined with the digital revolution in terms of how these manifests in the market. The increased offerings of Massive Open Online Courses (MOOCs), hybrid learning environments, and

virtual learning systems (e.g., Coursera, edX, and proprietary university environments) have opened the possibilities of real estate education remarkably (Crawford et al., 2020). They include scalable, asynchronous learning that can address a wide range of students, including working professionals.

In addition, Artificial Intelligence (AI) is being implemented in education to support individual learning tracks, especially in technical fields like market analysis, virtual investment, and risk evaluation. AI-enabled tools have the potential to tailor learning to an individual learner's pace and results level and increase engagement as well as understanding (Holmes et al., 2019). ARGUS, CoStar, and GIS software, and predictive modelling platforms are also being utilised by real estate programmes to build data fluency, an essential capability in workflows in contemporary valuation and development activity (Sayce et al., 2022).

Globalization of Real Estate Education

Real estate that was once a domestic enterprise has now become transnational. International investment flow, regulation convergence, and cross-border urban development projects require an internationalized curriculum. Most establishments have reacted by including both comparative market studies, global case law, and portfolio management in their curricula (Chia & Pong, 2015).

Also, the study-abroad programs, dual degrees, and international internships demonstrate the peculiarities of the foreign market, risk environment, and socio-political situation to the student. These experiences develop global competence and expand employability. The Urban Land Institute (ULI, 2023) registers this as the rising importance of these programs in training graduates to serve multinational firms, sovereign wealth funds, and other property consultancies at the international level.

Emphasis on Soft Skills

Soft skills like leadership, emotional intelligence, ethics, and negotiation are becoming the core demands of employers, though technical knowledge still has its essence. It is necessary to build client interactions, a mixed group of colleagues, and a discussion of stakeholders in different development situations.

The educational institutions reacted by introducing role-playing games, negotiation laboratories, or ethics case studies into the course (Nelson et al., 2020). Current curricula may include lessons on professional ethics, ethical dilemmas, and sustainability leadership because real estate practitioners are often asked difficult questions whose resolutions have profound social and environmental implications (Baharum et al., 2024). The competencies are particularly applicable in a post-COVID world where clients are increasingly demanding, community relations are becoming more important, and regulators are paying further attention.

Adaptive Curriculum for Market Changes

The inconsistency of the global real estate markets, exacerbated by the COVID-19 pandemic and climate-related disturbances, is another aspect that calls to demand a flexible curriculum. Micro-credentials and stackable courses Also emerging in high-demand niche areas, including proptech, real estate crowdfunding, affordable housing, and green infrastructure finance are micro-credentials and stacking credits (Apergis & Gupta, 2021). These abridged learning modules are flexible for mid-career professionals, as well as allow the institutions to update the content quickly following market requirements.

Along with that, the crisis and resilience management courses will also be introduced, which will include units on pandemic recovery plans, disaster risk reduction, and economic downturn adjustments (Zhou et al., 2021). The interests would be to shift away from immobile forms of education to a lifetime and flexible learning that can be in line with the changing career paths and the changes of sectors.

In conclusion, technological integration, global mindset, skills-based humanity, and adaptive learning will make a trend in the real estate schooling of tomorrow. Such trends provide an existing issue as well as an opportunity for education providers, especially in new markets such as Malaysia. Futureproofing of the local curricula to

adhere to international child-centred instructional breakthroughs is also vital in developing technical and ethically upright graduates who are well-rounded, flexible in a globalising world, and adaptable to change.

Empirical Mini-Study: Curriculum Content Analysis (Malaysia)

Methods — mini audit

A content analysis was performed on publicly available programme documents—course structures, handbooks, and faculty programme pages—of three Malaysian public universities with established real estate programmes: Uni A, Uni B, and Uni C. Documents from 2019 to 2024 were examined for the presence of (i) sustainability/ESG modules, (ii) technology/PropTech modules, and (iii) industry alignment mechanisms, including mandatory internships, capstone projects, and professional accreditation statements. In cases where module-level learning outcomes were absent, insights were drawn from programme objectives and module titles. This audit aims to support the paper's assessment of gaps in real estate education in Malaysia.

Findings and critical evaluation

The audit shows that all three institutions have strong real estate programmes focused on core technical areas like valuation, property law, and finance, with clear connections to professional accreditation. However, there are limited public offerings of dedicated modules on sustainability (ESG) and PropTech.

- Uni A's programme documentation is clear, featuring detailed module lists and credit structures. Core modules focus on valuation, investment appraisal, and professional ethics. While sustainability topics are included, they are mainly integrated into planning or ethics courses instead of being offered as specific ESG courses. There is limited PropTech content in the general outlines, although GIS and technical skills are implied in some modules. Although Uni A's strong documentation supports programme sustainability, the lack of dedicated ESG and PropTech modules indicates a chance to enhance pedagogical sustainability by adding targeted strands in these areas.
- Uni B's public programme pages highlight a strong focus on professional skills such as valuation, agency practice, and property management, along with established industry connections. However, they do not consistently showcase explicit modules in PropTech and ESG. While postgraduate programmes demonstrate advanced technical depth, increasing the visibility of sustainability and digital competency at the undergraduate level would enhance clarity for students and stakeholders.
- Uni C's programmes showcase strengths in planning, policy, and technology, forming a solid basis for sustainability education. However, specific ESG or PropTech modules are not well-represented in the public handbook, with technology content scattered across built-environment programmes instead of being focused in a dedicated PropTech pathway. Naming and promoting sustainability and PropTech modules would enhance their visibility and encourage more students to engage with them.

Synthesis: The current approach at these universities is inadequate. Sustainability and technology are integrated into existing modules but not clearly defined, leading to a lack of transparency for students and stakeholders. This implicit method complicates outcome-based education (OBE) mapping and hinders the development of essential competencies in critical areas like ESG reporting and PropTech.

To improve, universities must take decisive action:

- Clearly outline ESG and PropTech modules or elective pathways.
- Map these modules explicitly to learning outcomes and assessment strategies.
- Provide transparent internship and capstone requirements to ensure industry relevance.

Without these changes, the universities risk falling behind in equipping students with the skills needed in today's fast-evolving landscape. Table 4 summarises the mini audit findings of the three public universities.

Table 4: Summary findings from mini audit

Institution	Source (public docs)	ESG (explicit?)	PropTech (explicit?)	Industry alignment (internship/capstone/accreditation)
Uni A	Course structure, handbook	Medium (implicit integration)	Low	Strong (BOVAEP/RICS references; clear modules)
Uni B	Programme pages, postgraduate modules	Low	Low	Strong professional orientation; internship presence varies
Uni C	Department pages, guidebook	Low (planning foundation)	Medium (tech dispersed)	Cross-disciplinary strengths; internship/capstone varies

(Legend: Explicitness categorised as Low = 1, Medium = 2, High = 3; based on public module naming and OBE mapping visibility.)

Challenges In Real Estate Pedagogy

Although there has been a major leap in real estate education, several pedagogical issues are still present in the industry, with regard to the realignment of instruction to the current needs of the real estate environments, the relevance of academic education, and downplaying diversity and equity challenges. Such obstacles are particularly acute in emerging markets like Malaysia, in which real estate education should reconcile the worldwide standard with local socio-economic factors.

Keeping Pace with Rapid Industry Changes

The question that these changes present to curriculum design is a fundamental one concerning the rapid evolution of real estate markets on the basis of technology, the process of financial innovation, and changes in investor behaviour. Advanced technologies like blockchain, cryptocurrency-based transactions, and smart contracts are being used more and more in worldwide house deals (Kou et al., 2021). Nonetheless, the Malaysian real estate programs have taken relatively long to adapt these developments into formal education, leaving a mismatch between graduate strengths and the requirements of the industry.

To illustrate, as the global institutions are discussing modules on proptech, digital twin simulations, and tokenization of property investments, many Malaysian universities are still focusing on the traditional valuation and regulatory frameworks (Maria et al., 2018). This causes a gap between graduate preparedness to work in contemporary, technology-intensive real estate companies, especially those working with multinational customers or corporations or those that are in fintech. To guarantee that the curriculum is now in line with the aspirations of Industry 4.0, as well as the objectives of the Malaysian Education Blueprint 2015-2025, continuous renewal of the curriculum is necessary.

Balancing Theory and Practice

The other key pedagogical contradiction is finding the best balance between theory and professional practice. Although Malaysian real estate programs have solid theoretical backgrounds on land law, valuation, and planning, the students do not usually get to experience the real world through internships, live case projects, and practical learning studies, due to the lack of integration (Hamzah., 2021).

Most academic staff in most of the public institutions have a scholarly background as opposed to an industry background, thus creating a lack of transfer in the applied knowledge. Further, industrial experience is not always compulsory and not always systematically incorporated into course content, with internships, seminars, and site visits sometimes being offered. This induces a gap between learning and doing, restricting student readiness to take professional licenses or compete in competitive labour markets. To close this theory-practice gap, it is

important that academia and industry foster relationships through academia-industry partnerships and applied research collaborations (Baharum et al., 2024).

Diversity and Inclusion Gaps

Real estate pedagogy should not be limited by gender or ethnic diversity but should cover the diversity of property types being taught, the geographical context of learning content areas, or use the social inclusiveness development models in the teaching content. Teaching materials in the case of Malaysia still tend to focus on urban commercial projects within the Klang Valley and a few cases in other areas, such as rural, indigenous people, or affordable housing construction (Zyed, 2025).

Another issue of concern is faculty diversity. Faculties in real states, which are present in most of the universities in Malaysia, are still rather homogenous, where female scholars, members of minorities, and individuals of various backgrounds representing this category of professional practitioners are underrepresented. This influences the worldviews echoing into the curriculum material and guidance given to the students (Warren, Peterson, & Neil, 2012). To increase inclusion by reviewing curriculum, diversifying case studies, and faculty recruitment methods aligned with the Malaysia Shared Prosperity Vision 2030 is critical because inclusion in real estate educational processes relates to equity.

The dilemmas of real estate pedagogy in Malaysia have been multidimensional and involve structural components, pedagogical components, and cultural components. Aligning the curriculum with the rapid industry update, instituting a practical exposure in the curriculum, and inclusive pedagogy are not only academic efforts but strategic necessities. To address these challenges, closer cooperation between the school and industry, the assistance of regulatory organizations of government, such as BOVAEP and MQA, and the coordination of policies with the overall national development plans in housing, education, and digital transformation will be necessary.

CONCLUSION

Real estate education needs to change in the right direction to be effective. It must not just possess technical training, but it must also aim to be a leader in the promotion of sustainability, not only in practice within the industry, but also in teaching practice. The only way to ensure that graduates become active participants and relevant actors in the built environment of the future is to acknowledge this dual mandate, design comprehensive, outcome-based academic curricula, and incorporate the concepts that are beneficial to both environment and people. This metamorphosis is not just necessary in making students successful, but also for the future of real estate as a field that will make this world a better place.

RECOMMENDATIONS

Transformation of Real Estate Education for a Bright Future

Reinventing the Curriculum

Our education system should also constantly develop to match the tempo of the transformations in the real estate industry. They should include forward-looking issues, including blockchain, sustainable finance, AI valuations, and climate risk, both in mandatory and optional classes. Faculty members must be keen to collaborate with real estate firms, developers, regulatory agencies, and tech companies to develop life-experience-based case studies, co-teach classes, and provide worthwhile industry-related certifications, including RISM, RICS, MIPFM, and MIEA.

Linking Theory to Real-World Practice

An academic curriculum must incorporate systematic, practical experiences. This can take the form of capstone projects in industry, lengthy internships, property simulations, and site visits that are authentic experiences. Their faculty should also seek to acquire some practical experience or even work with industry professionals on

research. The arrangement of real estate labs where students may engage in simulation of transactions and feasibility studies will allow them to understand the complexities of the real world.

Fostering Diversity and Local Connections

Pedagogical materials should consider the diverse terrain that is the Malaysian real estate, and this should encompass rural development and social housing, to name a few. Inclusive hiring (in the gender, ethnicity, and industrial background) in faculties is an important factor that should be given priority. We need to incorporate meaningful aspects of public policy and social equity through partnerships with government departments into our instructional methods.

Setting National Standards for Teaching Excellence

Faculty should have a composite and integrated system of assessing and improving the quality of real estate learning. Standards can also be developed with the assistance of the Malaysian Qualifications Agency (MQA) and other related property bodies like the BOVAEP and others that centre around technology preparedness, integration of ESG (Environmental, Social, and Governance), and the linking of teaching to industry requirements.

Adapting to Digital Learning and Lifelong Education

Faculty must adopt flexible, technologically enabled learning modes in the course of transformation to Education 5.0 and Industry 4.0: micro-credentials, MOOCs, and online simulations. Such formats will be useful to full-time students and working/learning individuals and promote lifelong learning. The Universities should also aim at training soft skills, especially related to negotiating, ethics, and approaching the stakeholders, to enable the graduates to become leaders in the complex property market.

To ensure the real estate education in Malaysia is sustainable, to be competitive in the international context but still localized, universities must embrace more than the outdated curricula to ensure more active learning. Figure 2 illustrates the summary of the curriculum reform recommendation. The goal they should be aiming towards is responsive, inclusive, and future-ready, which can result in knowledgeable, ethical, tech-savvy, and socially conscious graduates. Their future success in the real estate industry of Malaysia lies in how they respond to the following challenges in universities today.

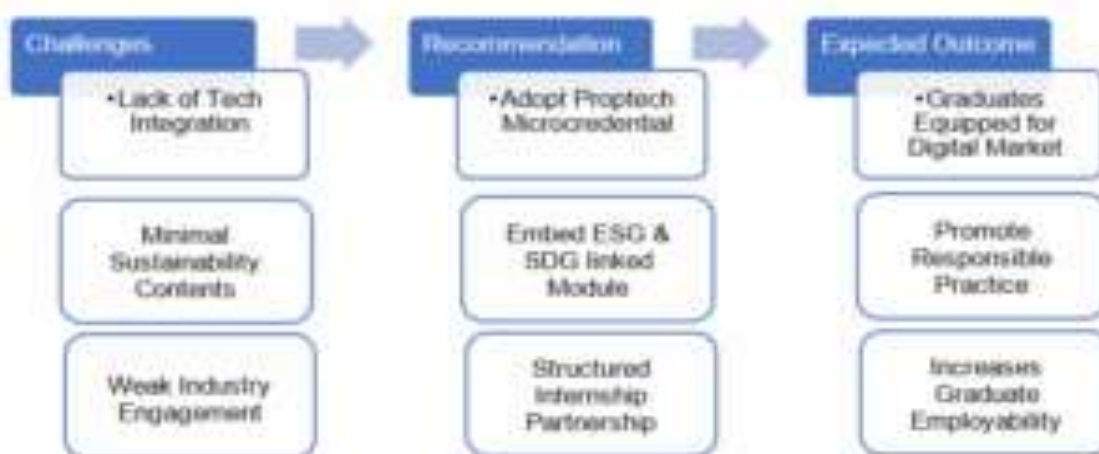


Figure 2: Curriculum Reform Recommendations

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