



**Council of Heads of Built Environment, Special Interest Group
Report**

**Designing Equity, Diversity and Inclusion in Construction
Management and Quantity Surveying Higher Education Curriculum**

SIG- Equality, Diversity & Inclusion

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About CHOBE and the Special Interest Group (SIG) Project

CHOBE supports and represents, with a voice of influence, those with strategic responsibility of the development and delivery of graduate and postgraduate education and research within the disciplines of construction property and surveying. CHOBE's objectives include;

- Developing communities of practice in built environment education to support heads of department/schools (or nominees) in the UK and Ireland;
- Influencing policy consultations through being the collective contact point for issues about built environment education for external stakeholders and Professional Statutory and Regulatory Bodies;
- Providing a forum in which people can come together to network, share and address problems in a supportive and collaborative way;
- Addressing the practical, day-to-day matters associated with learning, teaching and Assessment;
- Funding to initiate larger research projects that can have an impact on how we deliver our businesses.

In June 2023 CHOBE invited proposals to establish Special Interest Groups (SIGs) for the forthcoming academic year. The purpose was to carry out small, targeted research into specific themes facing Built Environment educators. Each group was led by an expert in that particular field who will worked in association with a number of interested academics to discuss and identify different forms of innovation and good practice. Four SIGs were supported with a grant of £3000 each.

Executive Summary

The UK's construction industry is faced with a significant skills shortage. This shortage can be attributed to institutionalized discrimination and a need for more educational and professional growth opportunities. To tackle this problem, this research explores the integration of Equality, Diversity and Inclusion (EDI) principles into the Construction Management and Quantity Surveying (CM&QS) Higher Education (HE) curriculum. This study adopted a mixed-methods approach, combining curriculum mapping with focus group discussions involving various CM & QS HE stakeholders. The findings reveal deficiencies in the existing curriculum, particularly in identity, personalization and reflection. Recommendations include fostering a sense of belonging, building student confidence and resilience, reflecting diverse student experiences, integrating digital skills, adopting inclusive language pedagogy, establishing and strengthening industry collaborations, creating safe spaces, and implementing evidence-based evaluation of diversity initiatives.

By addressing these recommendations, the construction industry can create a more inclusive and equitable environment, attracting a diverse workforce and fostering innovation to meet 21st century challenges.

Introduction: Equity, Diversity, and Inclusion (EDI) in Construction Higher Education

In the current climate of increasing skills shortages in essential industries in the UK, the low rate of enrolment and retention of women in Construction Management and Quantity Surveying degrees in UK universities is well-established as a concern for faculty and the related professions (Naoum, 2020). The institutionalized discrimination, deeply rooted in the construction industry, makes the industry less attractive to non-traditional entrants and prevents these groups from considering careers within the industry (Akinlolu et al.,2023). A lack of education and training programs, mentorship and availability of opportunities and qualifications compounds this problem. In addition, fewer opportunities to network and build the necessary skills make it difficult to progress in the profession (Barreto et al., 2017; Zhang et al., 2021). It is suitable for social justice reasons that the construction profession accommodates individuals from diverse backgrounds with different experiences to help challenge the status quo of being saturated with dominant empowered groups (CIOB,2021).

Initiatives to date have been 'representative', focusing on increasing the numbers filling the pipeline rather than on change to the culture itself (Peters, 2018). These initiatives do not bring about the dramatic culture change needed to ensure underrepresented groups can be their best (ibid). Further, the construction industry faces a skills gap and

declining fortunes, as a lack of diversity limits the talent pipeline, meaning that the industry misses out on innovation (Raeng, 2018; CIOB, 2021). Critical to the industry's growth is the entry of a diverse and innovative workforce with the requisite skills to solve complex 21st-century challenges (Galae et al., 2018). Therefore, addressing the skills gap in the built environment by increasing diversity and creating a culture that ensures that underrepresented groups can be their best through the re-alignment of curriculum becomes critical to this vision.

There is a dearth of research on EDI content in construction higher education (HE) curricula globally, even more so in the United Kingdom. Suggestions on how the curriculum should be constructed, taught and assessed are lacking. Consequently, addressing EDI within HE programs becomes imperative to create inclusive and equitable learning environments. Despite equality and diversity policies in higher education institutions, diversity issues persist. Efforts to diversify and EDI in the construction industry must start at the foundation – higher education, wherein young adults' career choices are formed. While much attention is focused on enrolment, young people's ability to learn and succeed in their studies and future employability depends significantly on their classroom experiences. Therefore, adopting a transformative teaching and learning approach to tackling the root causes of inequalities in the industry becomes crucial.

The Problem

Too often, prevailing pedagogical practices reinforce inequalities in the classroom – a result of lecturers' unawareness of inclusion issues or teaching and learning practices that do not actively enable diverse students. Blind teaching practices reinforce inequalities in the classroom, leading to the concept of a 'hidden curriculum' in which a particular group of students, particularly men, are permitted to dominate discussions and classroom space. This ongoing domination means women will continue to be a minority in higher-paying and skilled professions, perpetuating the gender gap in employment and the gender divide in construction careers, reducing the number of women who progress into senior leadership roles – and ultimately limiting social and economic development. A responsive and inclusive curriculum addresses this by integrating EDI into the fabric of teaching and learning – including the curriculum design processes, the management and facilitation of learners in the classroom, and approaches to assessment.

Research Aim

The study aimed to explore practical approaches to embedding and valuing principles of EDI in CM&QS higher education teaching and learning. The research sought to

raise awareness of the need for inclusive curricula in CM&QS curriculum among academic leaders, learning designers, educators and students.

Theoretical Framework: The Education for Social Justice Framework (ESJF)

This study was framed by the ESJF (London Met, 2019) as it relates to mainstreaming EDI in the curriculum of CM and QS programs. Adopting the ESJF as the theoretical framework for this research provided a structured approach to curriculum development, emphasising inclusive assessment practices, nurturing inclusive leadership qualities, and promoting critical engagement with social justice issues. Initially designed to address systemic inequalities within higher education, the ESJF promotes a comprehensive curriculum design, pedagogy, and assessment approach. Central to its ethos is recognising that education is crucial in challenging and dismantling entrenched power structures perpetuating inequality. By integrating EDI principles into educational practices, the ESJF seeks to cultivate inclusive leadership capable of driving transformative change across the BE sector.

Grounded in principles of equity, diversity, and inclusion (EDI), the ESJF advocates for educational practices that empower all learners, irrespective of background or identity. As shown in Figure 1, the ESJF combines educational theory, research, and practice perspectives in a holistic model covering six interrelated dimensions: inclusive assessment, inclusive leadership, critical theory and pedagogy, identity, personalisation and reflection, relationships and psychosocial environment and accessibility.

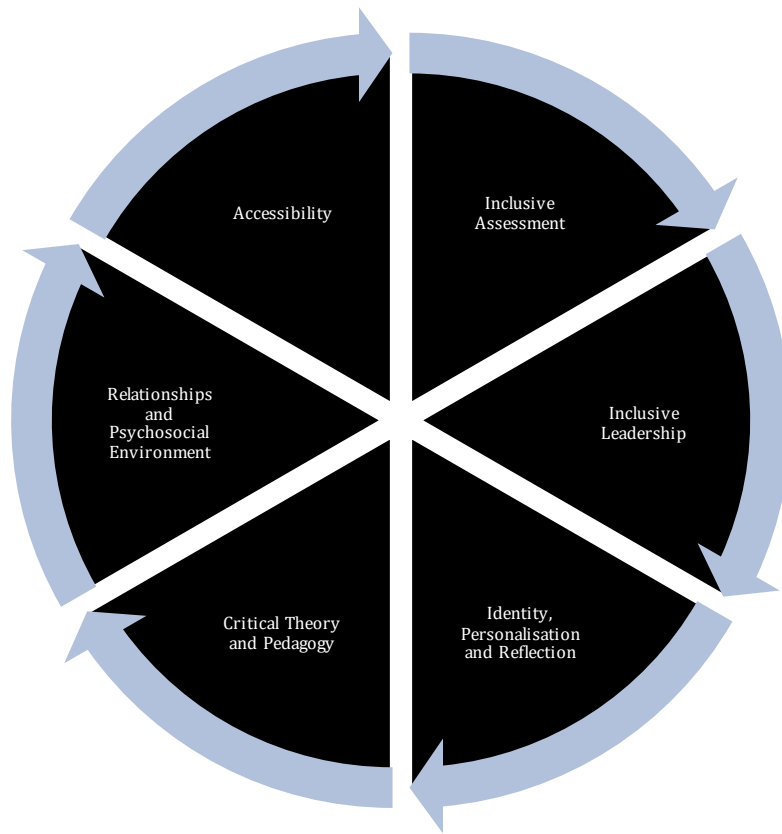


Figure 1: The Education for Social Justice Framework (LondonMet, 2019)

Features of the Framework

The ESJF comprises 21 areas organised into seven dimensions, as shown in Table 1 and described below;

Inclusive Assessment

Assessment and feedback are powerful learning drivers and serve as an essential means for diverse students to be engaged and their development supported to ensure success and future employability while connecting with their identities, experiences and cultural capital.

Inclusive Leadership

This focuses on producing graduates who become successful, inclusive leaders in their careers and practice across various disciplines.

Identity Personalisation and Reflection

This deals with providing students with education experiences that validate and honour their identities and lived experiences. A curriculum that reflects students' diversity and cultural traditions will help foster a sense of belonging and inclusion. Creating opportunities for students to share their experiences encourages reflective thinking on personal values and engagement with the World.

Critical Theory and Critical Pedagogy

In critical pedagogy, the curriculum content and process foster students' critical consciousness and empower them to challenge inequalities and drive social change. The academic environment has a hidden curriculum shaped by unspoken values and norms. Higher education gatekeepers can either maintain traditional power structures that result in marginalisation or challenge these norms and inspire students to participate actively in the World around them.

Decolonising the Curriculum

"Decolonizing" challenges the dominance of Western-centric worldviews, epistemological traditions, and ideological forces that marginalise and disadvantage certain groups, thereby perpetuating racial inequalities. The aim is to incorporate alternative perspectives, experiences, and ways of knowing and doing. It involves not only revising curriculum content but also transforming pedagogy to create a more democratic learning environment and to involve students in co-creating critical knowledge.

Relationships and Psychosocial Environment

Building strong connections with the university environment is crucial for fostering a sense of belonging among students and promoting their active engagement with learning and the various opportunities available at the university.

Accessibility

Accessibility ensures all areas of learning and teaching assessment are accessible to students, particularly those with visible and invisible disabilities, and attending to cultural, linguistic, physical, cognitive and technology needs.

Inclusive Assessment	Inclusive Leadership	Identity Personalisation and Reflection	Critical Theory and Critical Pedagogy	Decolonising the Curriculum	Relationships and Psychosocial Environment	Accessibility
Students expectations and voices	Concepts of Leadership	Belonging	Critical theory and social justice	Student Partnership	Induction and Community Building	Learning needs and styles
Methods of Assessment	Graduate attributes and values	Self-exploration	Student Engagement	Student Content	Student-staff relations	Online learning
Feedback on Assessment	Curriculum Embedding	Student capital	Hidden Curriculum	Language	Learning spaces and events	Assessment

Table 1: The 7 Dimensions of Curriculum of Change (LondonMet, 2019)

Research Design and Methods

The study adopted a mixed-method research approach to identify embedding EDI within the curriculum as a challenge and assess the extent to which CM&QS higher education curriculum gatekeepers understand and perceive its integration into the curriculum. The combined use of qualitative and quantitative methods provides richness and thorough information in the study (Creswell et al., 2018). A blend of qualitative and quantitative methods, referred to as mixed methods, has been found to enhance each other and reduce the limitations of adopting one single approach (Johnson & Onwuegbuzie, 2024). The quantitative curriculum mapping exercise provided insight into the extent to which EDI was currently embedded in the curriculum. In contrast, the focus group discussions provided a human subjective understanding of the level of awareness of the need for inclusive curricula among CM and QS Higher Education stakeholders, as well as exploring practical approaches to embedding EDI in teaching and delivery of CM&QS content to address inclusivity and enhance professional skills and inclusive behaviours, to inform qualitative results.

Curriculum mapping is the process of indexing or diagramming a curriculum to identify academic gaps, redundancies, and misalignments to improve its effectiveness across an institution, department or specific course provision (Jacobs, 2010). Through the application of the ESJF, a curriculum mapping exercise using a mapping matrix instrument (see Appendix 1) was conducted to determine and visualise the extent to which EDI content is being embedded in the curriculum of CM & QS programs across 49 Universities in the UK. Subsequently, a focus group discussion and a roundtable were conducted to explore practical approaches to embedding EDI in the teaching and delivering CM&QS content to address inclusivity and identify opportunities for implementing and piloting inclusive curriculum. Participants were categorised into four stakeholder groups: University Leadership, Academics (Programme/Course level), professional services and students. Participatory research methods were utilised to engage with the stakeholders, ensuring inclusivity, engagement, and reflecting diverse perspectives.

Engagement with students was crucial to ensure that curriculum changes aligned with their needs. Data was collected using an evaluation matrix (see Appendix B) adapted from a combination of the EDI Self-evaluation Framework (May 2010) and the EDI curriculum guidance (Open University, 2018). The evaluation matrix required each stakeholder group to reflect and highlight approaches to embedding EDI in their practice across six inclusive curriculum dimensions, i.e. concept, content, delivery, assessment, feedback/forward, review/evaluation, and between three principles, i.e. creating an accessible curriculum, enabling students to see themselves reflected in the curriculum and equipping students with skills to positively contribute to and work in a global and diverse environment. This approach aimed to facilitate a transition from EDI blindness to EDI awareness, ultimately enabling all stakeholders to be responsive

and fostering collaborative learning experiences, cultivating critical thinking and a commitment to social responsibility among participants.

Key Findings and Discussions

The analysis of the curriculum mapping exercise framed by the ESJF revealed specific areas within the Construction Management and Quantity Surveying (CM & QS) curriculum that require attention. Gaps were revealed around Identity, Personalization, and Reflection. These gaps align with existing literature that highlights the importance of these principles in creating an inclusive and equitable learning environment (Schon, 1983; Bandura, 1997).

Feedback from respondents indicated that the current curriculum needs to zoom in on certain key aspects. These include establishing a sense of belonging for students. Studies suggest belonging is critical for student success and well-being (Baumeister & Leary, 1995). In the CM & QS education context, they foster community and create a platform for students to connect with peers with similar interests and experiences. This is crucial for minority groups in a predominantly homogenous environment.

Additionally, there is a call for the curriculum to actively assist students in building confidence and resilience, offering channels for feedback and voicing concerns. The construction profession is known for its demanding and competitive nature; therefore, instilling confidence and resilience in students is vital for their achievements and future career growth. Research on self-efficacy supports these findings, suggesting that students who believe in their abilities are most likely to persevere through challenges (Bandura, 1997). Moreover, the curriculum should reflect the experiences and identities of students to ensure engagement and encourage lifelong learning. Student capital includes the knowledge, skills and experiences they bring to their education. A curriculum that mirrors students' varied backgrounds can boost their motivation and involvement (Ladson Billings, 1994).

The focus group discussions also highlighted the importance of a curriculum catering to the construction industry's needs. Fundamental principles for developing an inclusive CM & QS curriculum included;

- Incorporating competencies to equip students for the challenges of a technology-driven era,
- Promoting an inclusive language teaching method that respects students' diverse linguistic backgrounds and individuality,
- Fostering partnerships between academia and industry stakeholders,
- Providing supportive environments for students and using evidence-based methods to assess the effectiveness of diversity initiatives on policies, strategies and practice.

The construction industry increasingly relies on digital technologies; therefore, equipping students with digital skills is essential for their employability and future growth and development (WEF, 2020). In addition, collaboration between academia and industry is essential for ensuring that CM & QS education is relevant and responsive to the profession's needs (Hughes et al., 2019).

Conclusion and Recommendations

In conclusion, the study highlights the need for a more inclusive and equitable CM & QS curriculum. By addressing the deficiencies identified in the curriculum mapping and focus group exercise, educators can create learning environments that support the success and well-being of all students, regardless of their background or identity.

CM and QS educators play a crucial role in shaping the future of our industry and promoting EDI. This study highlights the critical EDI interventions in CM and QS programmes, offering guidance for educators and other HE stakeholders to integrate EDI principles into their programs and practices. It emphasizes the need for ongoing commitment to EDI, suggesting that curriculums should be kept up to date to reflect the importance of EDI in the industry. It also calls for students to commence their studies with an understanding of EDI and its impact, ensuring that educational activities are relevant and beneficial to individuals and the industry. The study encourages partnerships with industry stakeholders to develop practical curricula and work-based educational opportunities and suggests that students demonstrate their understanding of EDI through reflective activities and assessments. This emphasis on EDI throughout the academic journey is essential in preparing the next generation of industry leaders to recognize and address the importance of diversity and inclusion in the construction industry.

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Online learning	Does the university ensure that online materials are accessible and provided in good time																		
	Are reading lists developed conscious of accessibility in terms of both cost and ease of access?																		
	Does the curriculum provide support to digital literacy																		
	Does the university provide hybrid learning opportunities																		
Assessment	Does the curriculum provide alternative means of assessment to assess the learning outcomes																		
	Does the assessment provide pace and spacing to reduce stress																		

APPENDIX B- Evaluation Matrix

	Principle 1	Principle 2	Principle 3
	Create and Accessible Curriculum	Enable Students to see themselves reflected in the curriculum	Equip students with the skills to positively contribute to and work in a global and diverse world
In the Concept			
In the Content			
In the Delivery			
In the Assessment			
In the Feedback			
In the Review/Evaluation			