# CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

## Multiskilling in the UK Construction Industry

The UK Construction Industry (UKCI) has an ageing workforce, retention challenges, a shortage of skilled tradespersons and a shortfall in recruitment. It is predicted that by 2026, there will be a 20-25% decline in the available workforce and incapable of sustaining labour levels to deliver the built environment. The industry is heading towards a precipice and the status quo cannot be maintained.

The Government and Industry drive towards Modern Methods of Construction (MMC) and use of multiskilling to address the predicted skills shortage considers construction as an offsite manufacture and onsite assembly paradigm. At site, MMC will require the workforce to be retrained with assembly-type skills rather than traditional construction skills. A change of delivery method is needed. However no detailed plans or formal multiskilled training exist in the UKCI.

Multiskilling has been widely used in repetitive product driven sectors such as manufacturing and assembly and has been researched in international construction. It considers task and skill correlation, multiskilling strategy selection and respective training plans. Although multiskilling is not just a UKCI issue, there has been little research into UKCI multiskilling and its implementation. This begs the question: does the UKCI understand the complexity of this role and why is it not being used already?

This study is the first attempt at developing consensus on the UKCI's understanding of a multiskilled role and barriers to role implementation from a UKCI representative sample. This study seeks to answer the following research questions; what are the most appropriate tasks, skills and training needed to carry out a UKCI multiskilled role? What are the top barriers that would prevent introduction of a UKCI multiskilled role?

The Delphi 'ranking style' research method chosen consisted of four rounds of research question application. The method enabled the assimilation of 594 responses in round one, reducing to 296 by validation in round two, reducing to 106 by selection in round three and in round 4, ranking the Top 10 tasks, skills and training most appropriate to multiskilling as well as the Top 10 barriers to role implementation.

This study presents the final ranked lists and consensus graphs. Key findings show a shift of UKCI's perception towards construction as an assembly paradigm with component 'type' assembly, connection or installation responses and only one traditional role acknowledged. It identified that the UKCI must critically consider the overall effect of workers' safety and the technical risk to multiskilled role amalgamation. From the results the study presents a barrier hypothesis which must be considered by the UKCI for successful role implementation. Until the multiskilling role is regulated, major projects or businesses could use a similar Delphi 'ranking style' method to determine tasks, skills and training to develop a multiskilled role best suited to them. The multiskilled role requires a formal training and assessment syllabus for it to be regulated in the UKCI.

The findings from this study could be used to develop a training framework or matrix for multiskilled role development focussing on elements such as slinger signaller training and other categories such as safety, quality and digital skills. We must prepare our workforce for change.

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