

Utilizing Design for Six Sigma framework to Optimize Effective Soft Skills Instructional Curriculum Model

Jaser K. Mahasneh and Walid Thabet, Professor
Department of Building Construction, Virginia Tech
Blacksburg, VA 24061, USA

The United States construction industry is currently undergoing continuous changes as a response to the advanced technology, competitiveness, and globalization. All create notable challenges for the industry and academia to cope with these changes. Therefore, doing a much better job to equip the construction graduates with the needed marketplace skills became a strategic choice for construction academia to satisfy the industry needs.

Existing literature shows evidence of a soft skills gap among construction graduates. After a normative analysis for the gap and the possible remedies, the authors proposed utilizing Design for Six Sigma (DFSS) framework to aid in understanding the problem. Also, to optimize an effective soft skills instruction curriculum that can ultimately increase the soft skills cultivation among construction graduates. The proposed (DFSS) framework has five phases: Define Phase, Measure Phase, Analyze Phase, Design Phase and Verify Phase (DMADV).

In the Define Phase, a soft skills taxonomy of 12 clusters, and a list of curriculum instructional strategies were developed. The 12 clusters were used in the Measure Phase to benchmark the existing state of the soft skills clusters among construction graduates utilizing industry survey. Consequently, experts from academia determined the relationship between the taxonomy clusters and the curriculum instructional strategies list. In the Analyze Phase, the gap score was calculated for all clusters in the taxonomy, and the taxonomy skills were prioritized into 4 sets using quadrant analysis. The quality function deployment (QFD) tool was used four times to calculate the relative weight of the instructional strategy in each soft skills set. In the Design Phase, 4 instructional curriculum models were proposed. Finally, in the Verify Phase, a control plan was proposed to monitor the implementation of the study results in the construction education, also to continuously update the curriculum considering any change in the needs.

It is hoped that the study results will help academia to optimize effective soft skills instructional curriculum model, and to better implement the soft skills in construction curricula.

Key Words: Soft skills, Construction, Education, Design for Six Sigma, Taxonomy, Curriculum