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Investigating the role of on-site learning in the optimisation of craft gang's productivity in the construction industry

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ABSTRACT

This research investigates how on-site craft gangs adapt to the production environment on-site and how on-site learning is affected by prior learning in orders to optimise productivity. To achieve the aim of the study, previous experience of construction production process of craft gangs, site supervisors and the project managers working in Nigerian construction firms was evaluated.

The researcher employed a mixed method research approach utilising qualitative and quantitative approaches. The research strategies used in this investigation included interviews and observation method. A face-to-face semi-structured interviews of (15) participants comprising of craft gangs, site supervisors and the project managers was used in the qualitative method of the data collection to explore the project specific constraints and the response mechanism used to resolve the various constraints. A standard observation data form was used in all the observed seven (7) gang's blockwork craft gangs on the construction site.

The interview transcript results collected were analysed using content analysis, an objective and systematic form of data analysis applicable to analysing interview data. In the application of the learning curve model to the blockwork craft gang's, the straight-line model was used in the preliminary analysis of the application of learning curve theory to blockwork craft gang's. In this study, the ordinary least squares technique, frequently referred to as linear regression was used for the data analysis. 0.05% significance level was used as a satisfactory degree of the inferences in the observation part of this study. Blockwork craft gang's observed at the site shows approximately an overall average learning of 94.21%, resulting in 5.79% improvement in blockwork gang's productivity. In addition, substantial impact on productivity of blockwork construction was achieved in wall construction.

This research work is fundamental in construction management by way of developing an understanding into the changing aspects of on-site blockwork craft gangs learning

and its impact on productivity. The repetitive nature of blockwork activities has an important influence on the optimisation of productivity. Construction craft gangs productivity constraints and response mechanism generated in this study provides a methodological instrument for addressing the major constraints influencing craft gangs productivity. This instrument will also permit future research on the project specific constraints and the response mechanisms used to resolve the constraints.

Keywords: On-site Learning; Construction Productivity; Learning Curves Theory; Work Measurement; Craft Gangs and Blockwork.