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A model to evaluate the quality of Wi-Fi performance: Case study at UKZN Westville campus

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Abstract

Understanding how satisfied users are with services is very important in the delivery of quality services and in improving them. While studies have investigated perceptions of Wi-Fi among students, there is still a gap in understanding the overall perception of quality of service in terms of the different factors that may affect Wi-Fi service quality. Brady & Cronin Jr's service quality model proposes that outcome quality, physical environment quality and interaction quality affect service quality. Sub-constructs for the independent variables were generated, and Likert-scale items developed for each sub-construct, based on the literature. 373 questionnaires were administered to University of KwaZulu-Natal (UKZN) Westville campus students. Factor analysis was to confirm the sub-constructs. Multiple regression analysis was used to test the model's ability to predict Wi-Fi service quality. Of the three independent constructs, the outcome quality mean had the highest value (4.53), and it was similar to how the students rated service quality (4.52). All the constructs were rated at above the neutral score of 4. In the factor analysis, two physical environment quality items were excluded, and one service quality item was categorised with the expertise sub-construct of interaction quality. Using multiple regression analysis, the model showed that the independent constructs predict service quality with an R^2 of 59.5%. However, when models for individual most-used locations (the library and lecture venues) were conducted, the R^2 improved. The model can be used to understand users' perceptions of outcome quality, physical environment quality and interaction quality which influence the quality of Wi-Fi performance, and evaluate the Wi-Fi performance quality of different locations.