MacEwan University Wi-Fi Analysis

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Oral Presentation Abstract:

MacEwan University has recently upgraded its wireless infrastructure on campus. The goal was to determine whether or not wireless bandwidth speeds were consistent across an area of the school, and if they were not, which areas had the strongest and weakest connections. The results could be taken as a reflection of the new system's effectiveness and coverage. To assess wireless bandwidth speeds, both the upload and download speeds were measured across regions of the campus library using the mobile app Speedtest.net by Ookla which downloads chunks of data to a mobile device to measure connection speed. To ensure that the samples were representative, speeds were measured through various times of the day and different days of the week. These temporal dimensions were used as blocks in the experimental design. Preliminary data collection also indicated a significant difference in mobile device used, and so the use of either Apple's iPhone 6 or Samsung's Galaxy S3 was also selected as a block in order to prevent the age of the device becoming a nuisance factor in the experiment. In the end, the results indicated that wireless speeds were inconsistent across the library. The results provided a heat map which showed that some areas had a significantly higher bandwidth speed than other areas. The results of this study could be used to plan future changes to wireless router layout and influence new infrastructure decisions. In addition, the research methodology could be further developed and extended to any Wi-Fi or cellular service.

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