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Comparative Evaluation of the Effectiveness of Greenstone and DSpace Digital Library Software in Retrieving Rich Text Data using Recall and Precision Ratios

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ABSTRACT

The study attempted to compare the retrieval effectiveness of Greenstone and DSpace digital library software in handling rich text data. A web-experimental design was adopted and a Participant Observation Template (POT) was distributed and used to record users' observations for number of rich text data retrieved and number of relevant data retrieved which were used to compute the recall and precision ratios. Out of the 54 students targeted, only 35 attended the training hence 35 copies of the POT were distributed to an intact class of trained 500 level students. 34 copies were returned and 33 were found usable representing 97.14% response rate. The data collected were analysed using mean and standard deviation, presented in tables and graphs while the hypotheses was tested using t-test statistic at 0.05 level of significance. The result showed that DSpace had a higher recall ($\bar{x}$= 3.370) than Greenstone ($\bar{x}$= 2.799) while Greenstone had a higher precision ($\bar{x}$= 0.347) than DSpace ($\bar{x}$= 0.259). There was no significant difference in the mean recall ratio between Greenstone ($\bar{x}$ = 279.89) and DSpace ($\bar{x}$= 339.73) while there was a significant difference in the mean precision ratio between Greenstone ($\bar{x}$=34.696) and DSpace ($\bar{x}$=25.906). The study concluded that the overall performance of Greenstone software was better than DSpace in handling rich text data. Based on the findings of this research, it is recommended that digital library management systems should be redesigned to enable greater flexibility for the librarians, repository managers, or metadata editors to index digital materials at the point of editing the descriptive metadata.

Keywords: *Digital libraries, Retrieval Effectiveness, Greenstone, DSpace, Web Experiment, Open source library software.*

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