

Participatory Development of an Open Source Broadband Measurement Platform for Public Libraries

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iConference, April 1, 2019
University of Maryland, Washington, D.C.



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Introduction

- 2-Year Research Grant (2018-2020)
- IMLS Award #LG-71-18-0110-18
- To develop an open-source broadband measurement system *with* U.S. public libraries
- <http://slis.simmons.edu/blogs/mlbn/>

Research Background

- Public Libraries and the Internet, Public Library Funding and Technology Access, and Digital Inclusion Surveys (Bertot, et al.)
- Public library internet connectivity
 - broadband speeds
 - quality of service (QoS)



Research Background

- Bertot, Jaeger, Wahl, & Sigler (2011). *Public libraries and the Internet: an evolutionary perspective*.
- Future Issues and Considerations:
 - "Better understanding of the relationship between infrastructure and services." (p. 14)



Research Question

How can public libraries utilize broadband measurement tools and training materials to develop a better understanding of the relationship between library network infrastructure and digital services?

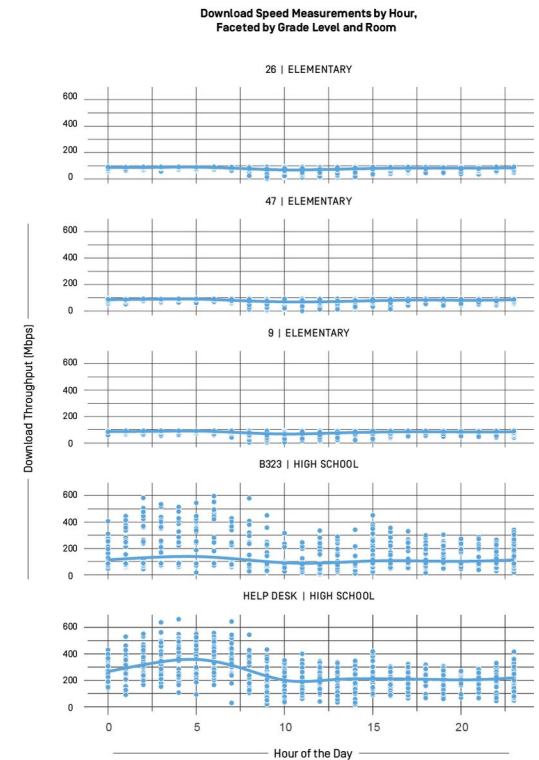


Image above from Ritzo, C. (2018) "Measuring Broadband in Alexandria Schools." Available at <http://bit.ly/2JFCHeW>

Methodology

Participatory design workshop (Oct 2018)

- Pre-workshop questionnaire

Fieldwork (Jan - May 2019)

- Interviews with library & IT staff
- Focus groups with patrons
- Observations



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Monterrey

Guadalajara

Mexico

Gulf of California

Gulf of Mexico

Participatory Design

Schuler & Namioka (1993). *Participatory design: Principles and practice*. Boca Raton: CRC Press.

- Politics, power, and control
- Participatory development of sociotechnical systems to promote democratic participation and skills enhancement (Ehn, p. 41)

Participatory Approach

Working *with* participants to understand their political, cultural, and technological challenges and opportunities across library & IT services.

We believe this approach will help us to design and develop a more useful broadband measurement system for public libraries.



Broadband Measurement System

The current measurement system consists of three main components:



One or more small computers, are connected to an institution's network, and run code that is configured to run a selection of Internet measurement tests, including: M-Lab's Network Diagnostic Tool (NDT), additional M-Lab hosted tests, and third party tests such as speedtest.net.



Cloud service used to manage, provision, administer, and update all of the measurement computers in the field.



Cloud service that receives test data from small computers, and provides an analysis and visualization, where project and library staff can access.

Early Insights

- Relationship between library staff & IT is critical to the success of any technology initiative
- Measurement device deployment has fewer issues when:
 - library and IT work together to prepare & test
 - IT staff is employed by library, or with a local/regional provider
- Thoughtfully considering the scale and complexity of the measurement & visualization system components

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Based on our increasing understanding of the realities we see in libraries, we are considering designing a couple options for visualizing the data.

Next Steps

- Data Visualization & Iteration
- Training Manual
- Year 2: 50-60 Public Libraries
- Final Report (June 2020)

Thank you!

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