A Preliminary Study of the Role of Language in Home Network Troubleshooting

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Research Question

How does language facilitate or hinder the establishment of **common ground** between home computer network maintainers and those providing tech support in person or virtually?

Approach

- Select technical and colloquial words that commonly appear in troubleshooting settings.
- Word sources: interview transcripts, 3 popular tech forums
- Conduct **open card sort** to discern familiarity with these terms.
- Design survey on troubleshooting terminology in tech support tools and situations based on results.

Word corpus

Capacity	
bandwidth	**bottlenecking**
buffering	**congestion**
data hog	**download**
freezes	**high traffic**
hogs the pipe	**mbps**
overage	**streaming**
throttle	**throughput**
upload	
slower/faster network	
sucking the data down	

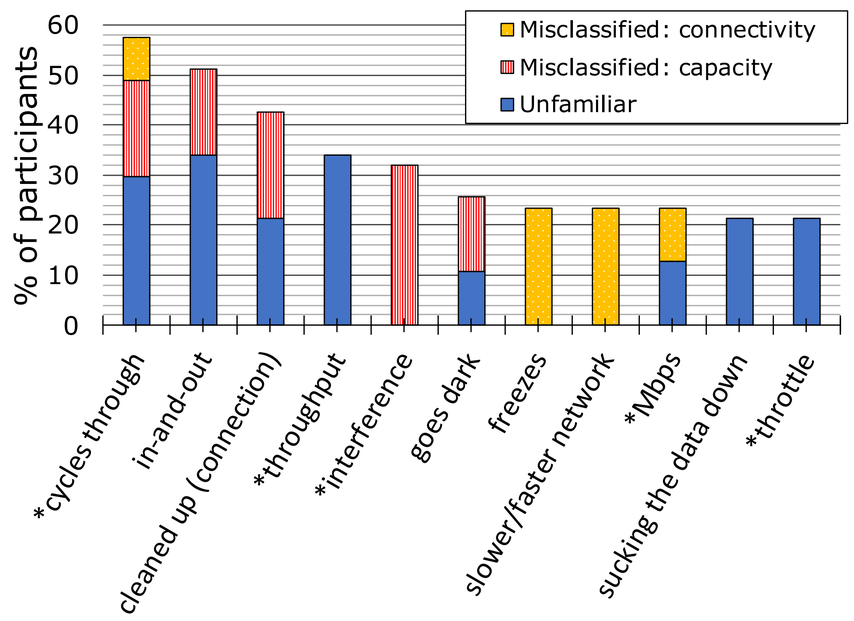
Connectivity	
(connection) drops	disconnect
goes dark	goes out
in-and-out	**interference**
not connected	**outage**
unstable	
cleaned up (connection)	
knocked out (Internet)	

Other
cycles through

Bold = technical terms

Results

Participants found both technical AND colloquial terms confusing.



These terms were the most problematic for our participants. They were most often mislabeled, or labeled as unfamiliar. Technical terms are in bold.

Unfamiliar		Misclassified	
in and out	34%	**interference**	32%
throughput	34%	**cycles through**	28%
cycles through	30%	freezes	23%
cleaned up (connection)	21%	slower/faster network	23%
sucking the data down	21%	cleaned up (connection)	21%
throttle	21%		

Takeaway point

Designing troubleshooting tools and scripts without considering terminology is a **missed opportunity.**

Next steps

- **Revise word corpus**
  - Evenly distributed between capacity and connectivity
  - Expand sources to more online forums
- Repeat as **closed card sort** experiment
  - Recruit participants more widely
  - Increase completion rate

Experiments

We performed an **online open card sort** using Optimal Sort, during 2 weeks in July 2018, using snowball recruiting on Facebook and Twitter.

Sample labels assigned by our participants

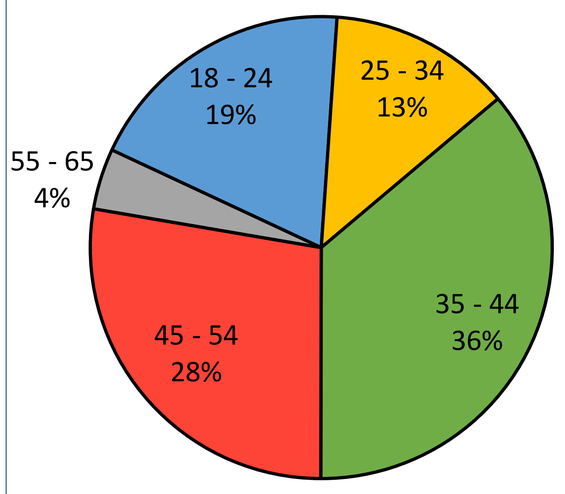
Capacity
Crowd and hallway
Data transfer
Too many cooks

Connectivity
Bad or no Internet
Connection issues
Network issues

Unfamiliar
Jargon (unknown)
Not familiar with
Term[s] I've heard but don't understand

- 47 participants completed the sort (37% completion rate)
- 79% are college educated.
- 48% hold advanced degrees.

Age distribution of participants (N=47)



Participants reported the following troubleshooting strategies in our post-sort survey:

Contact

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For more information

Extended abstract, link to the revised study (coming soon!), and more information about the project:

http://cs.carleton.edu/faculty/adalal/troubleshooting

Special thanks to: Ellie Mamantov* and Sam Chen* * Our study participants (card sort and interview) * Carleton College's Towsley Endowment for the Sciences

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