

The use of technology to enhance tactual learning: A study of braille teaching professionals

Natalie Martiniello, M.Sc, VRT/SRDV
Université de Montréal



Braille Literacy

- Braille literacy rates
- Technology as a “threat”
- “Success” as a function of braille literacy – Ryles’ study
 - Unemployment: BR = 44%; PR = 77%
 - Graduate degrees: BR = 30%; PR = 13%
 - Highest income bracket: BR = 25%; PR = 7%
- Psychosocial implications

Technology and Braille Instruction

- Use of multiple devices: D'Andrea (2012)
- iDevices and braille displays
- Learning through hardcopy vs electronic braille: unknown outcomes

Technology and Braille Instruction

- Technologies developed to enhance braille learning



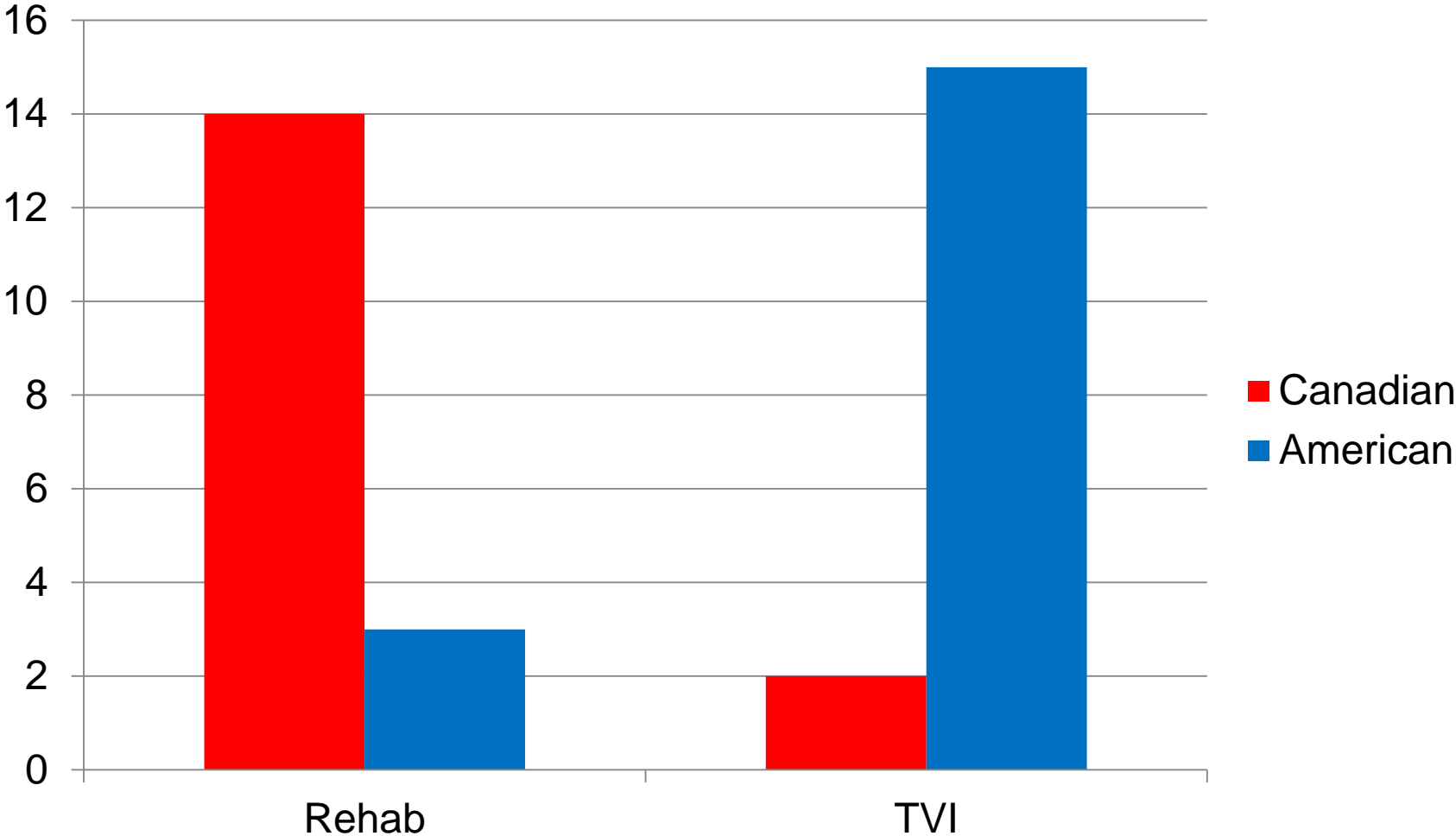
Objective

To gain a general understanding of the perception and use of technology within braille instruction today

Survey Methodology

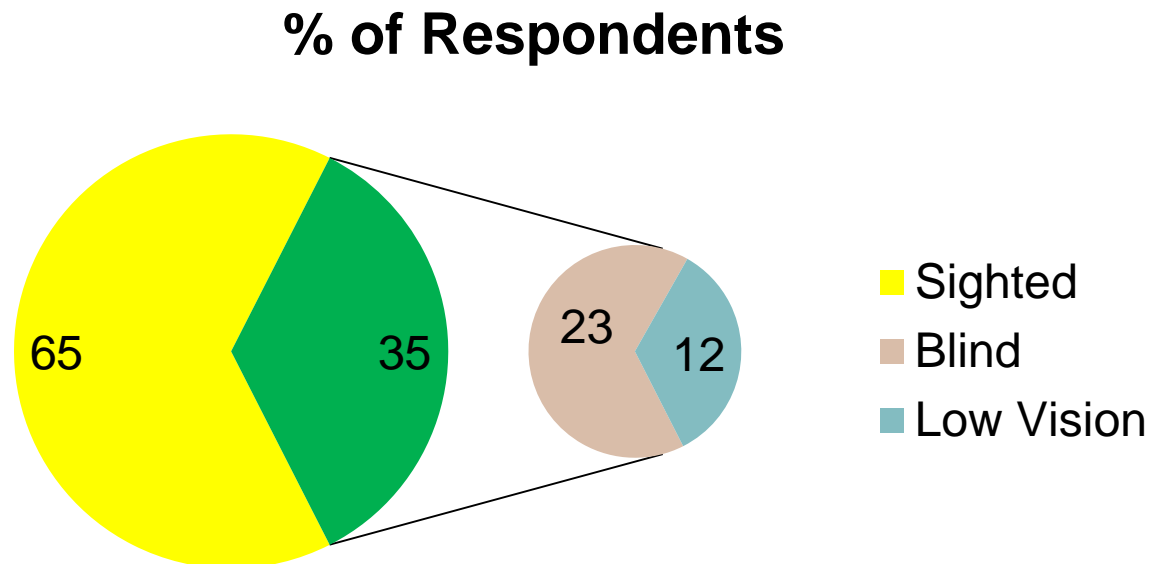
- Ethics approval through CRIR
- Quantitative, online/telephone survey
- Identification and recruitment of respondents
- Survey instrument
- Group-based comparisons
 - Rehab vs TVI
 - Sighted vs Blind/Low Vision

Location and Profession

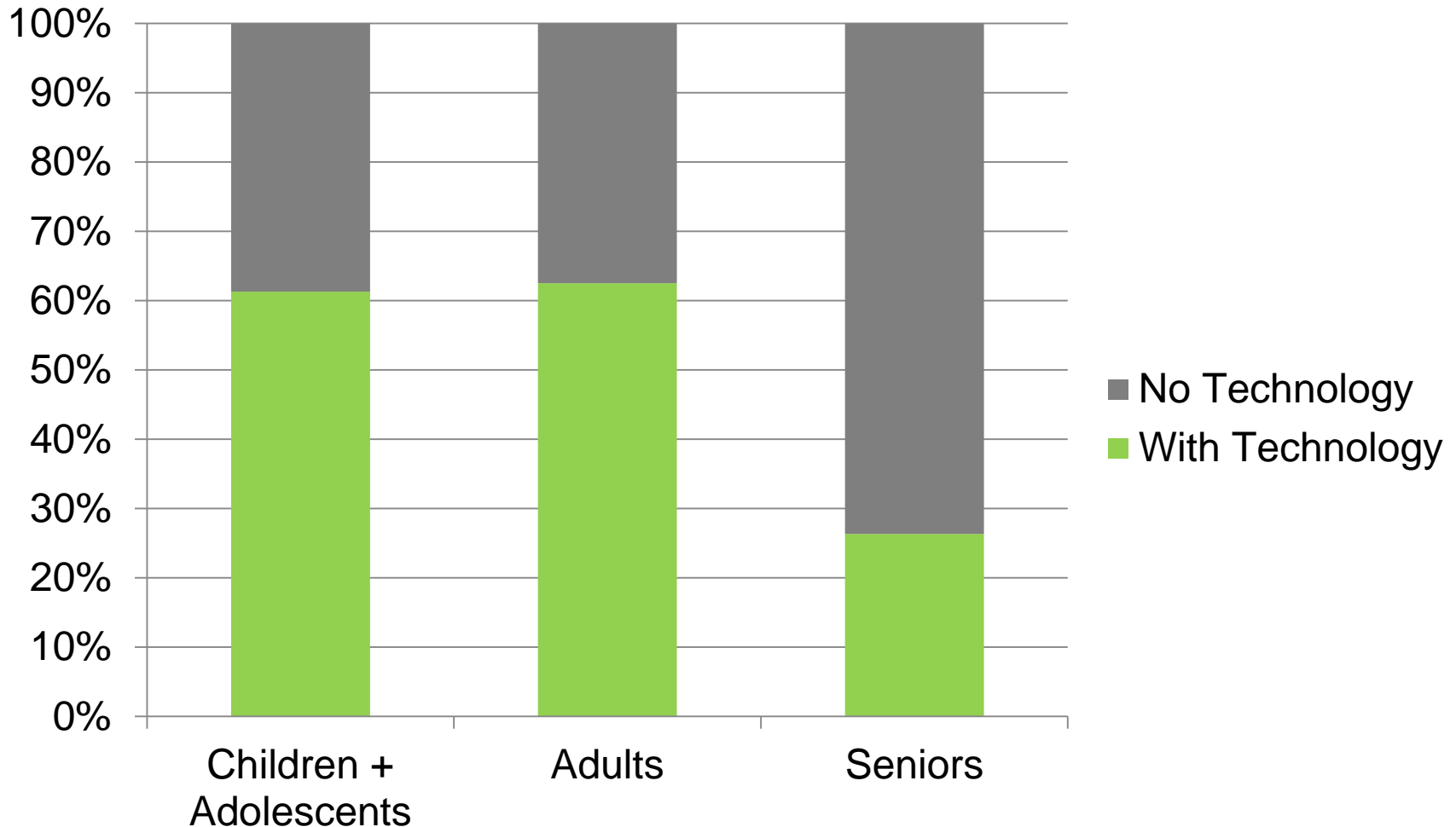


Demographics

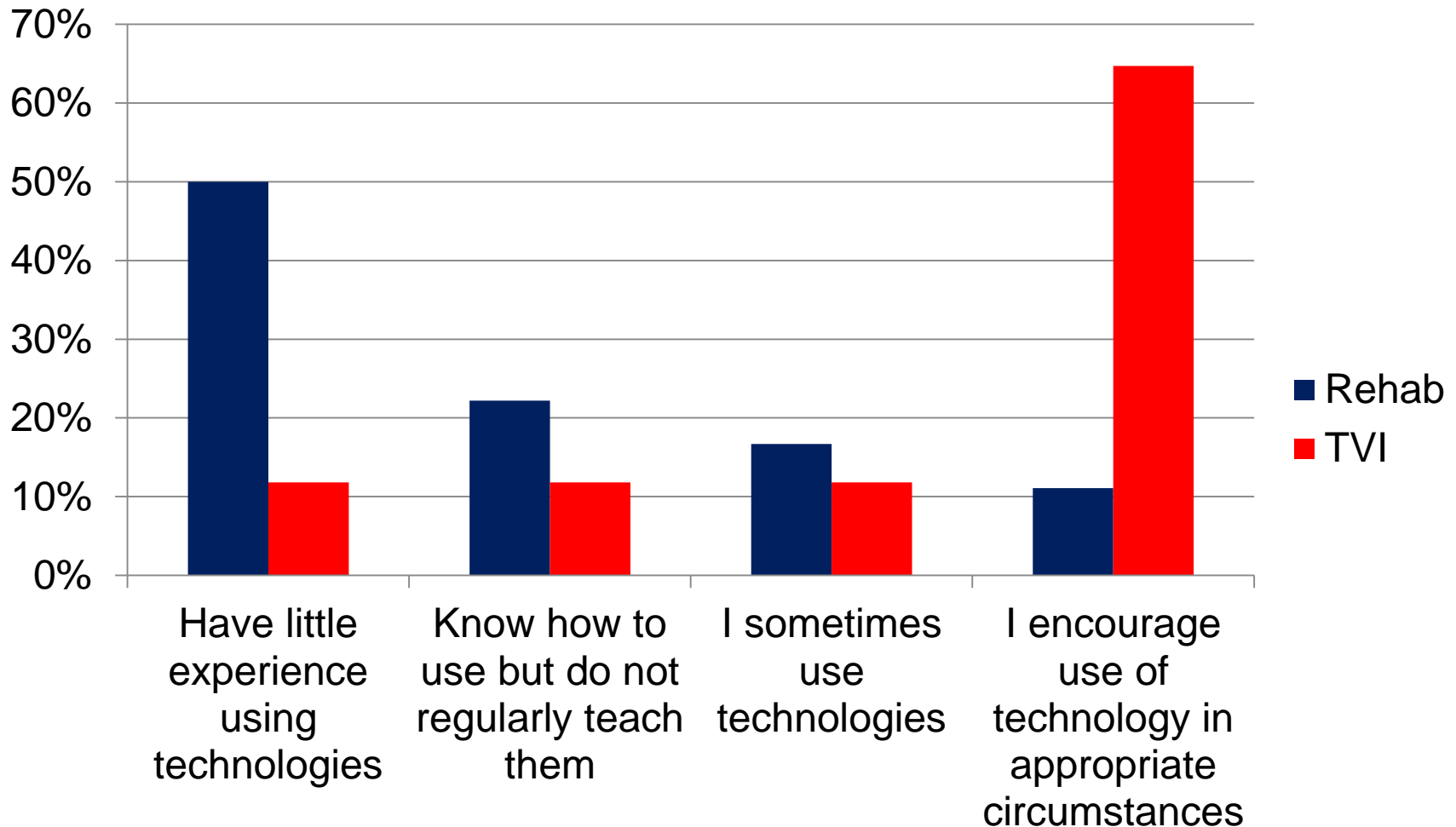
- Avg experience: 12 years
- 15% working only in rural areas
- 65% sighted, 35% blind/low vision



Use of Technology by Age Group

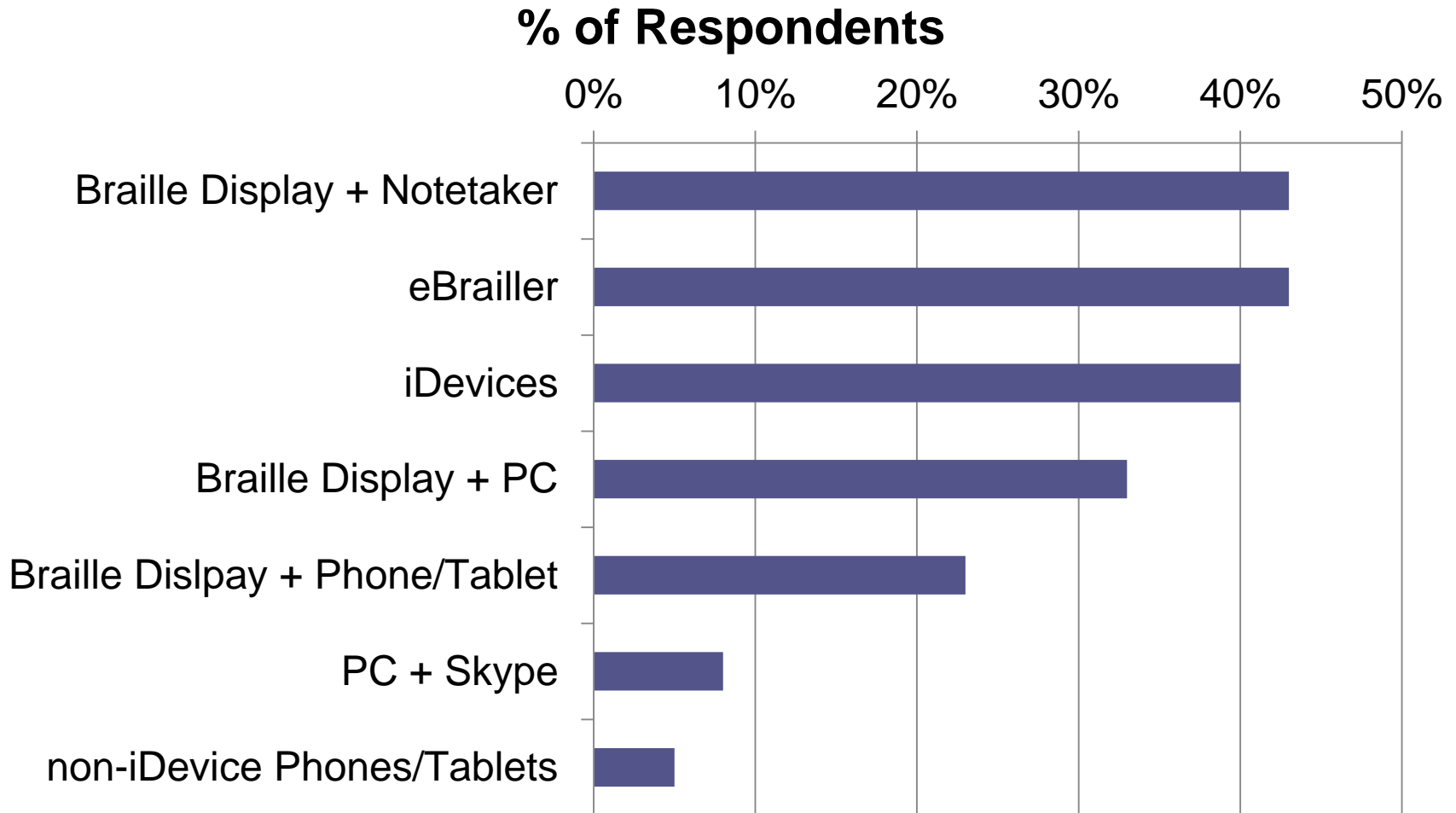


Instructor Preparedness

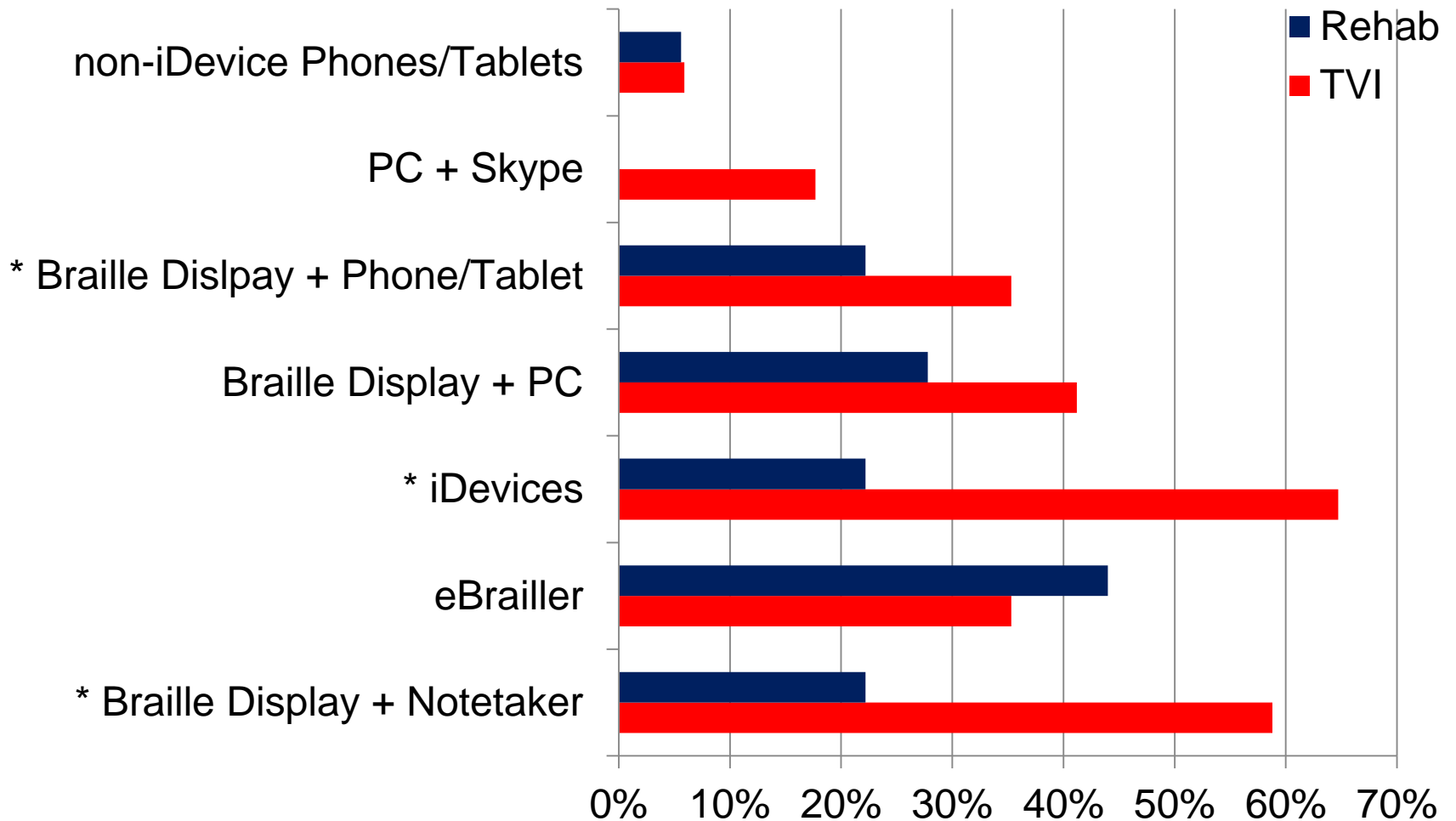


Chi-square p-value (TVI vs Rehab): $p = .006$

Technologies Utilized in Instruction



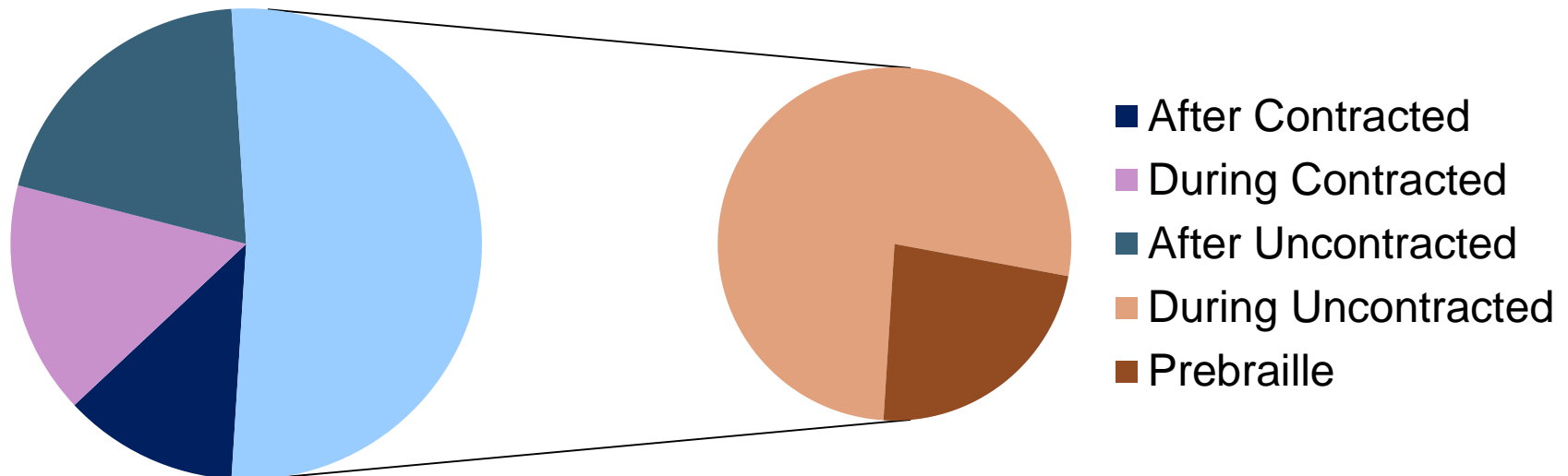
Technologies Utilized (Rehab vs TVI)



*p < .05 (TVI vs Rehab)

When is technology introduced?

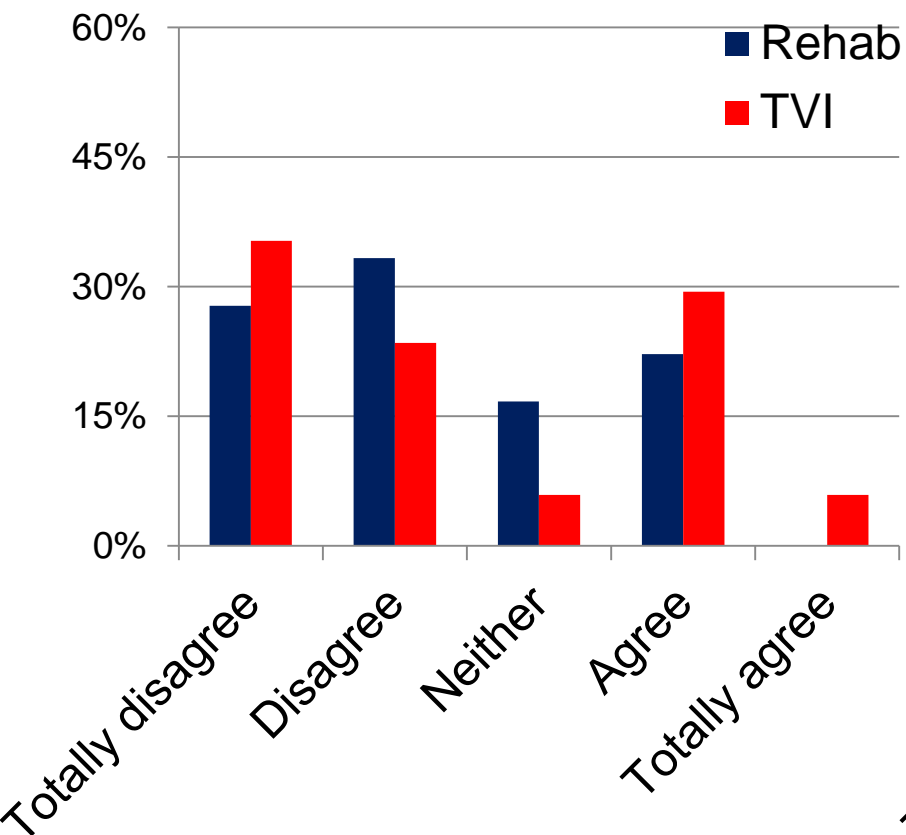
% of Respondents



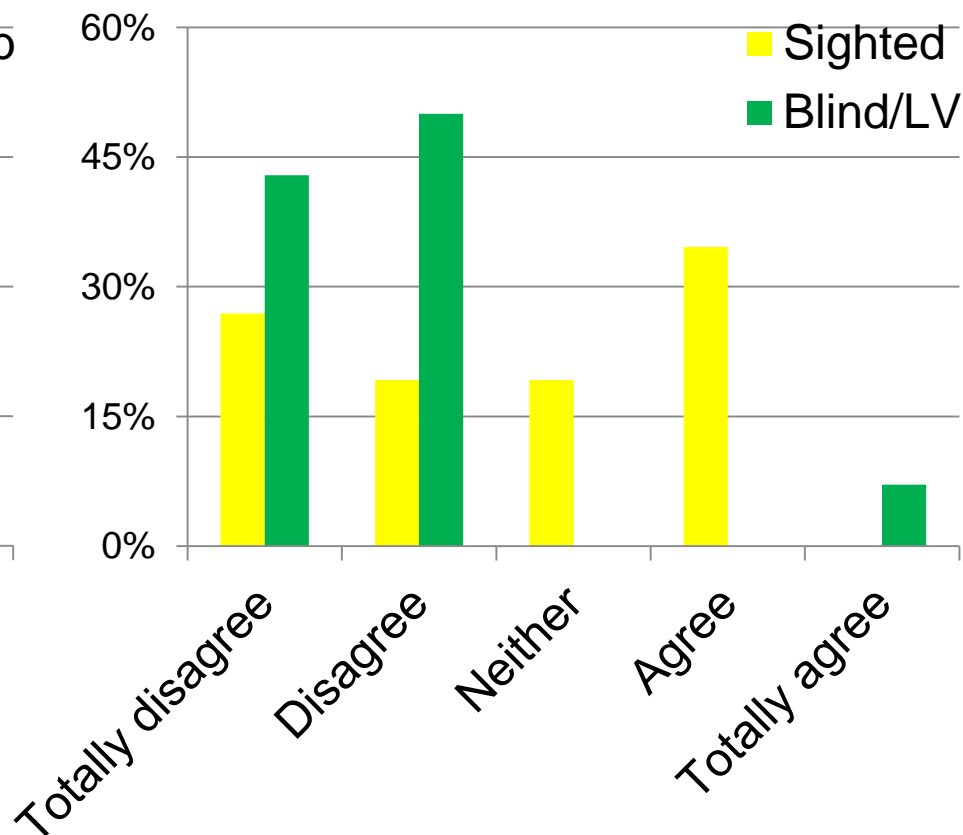
Perceived Threats to Braille

The invention of new technologies such as text-to-speech software threatens the long-term viability of braille as a medium

Rehab vs TVI

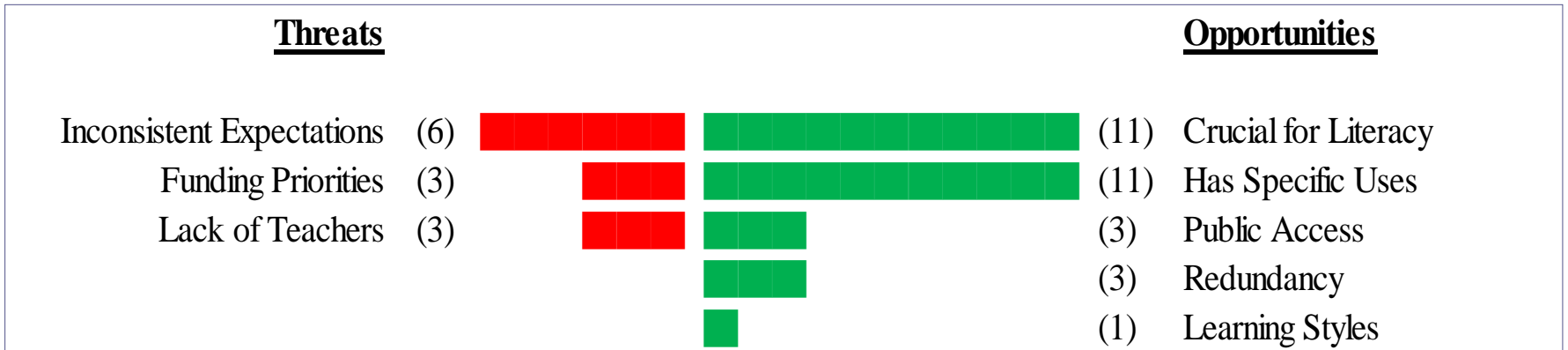


Sighted vs Blind/Low Vision



$p < .05$ (Sighted vs Blind/Low Vision)

Perceived Threats



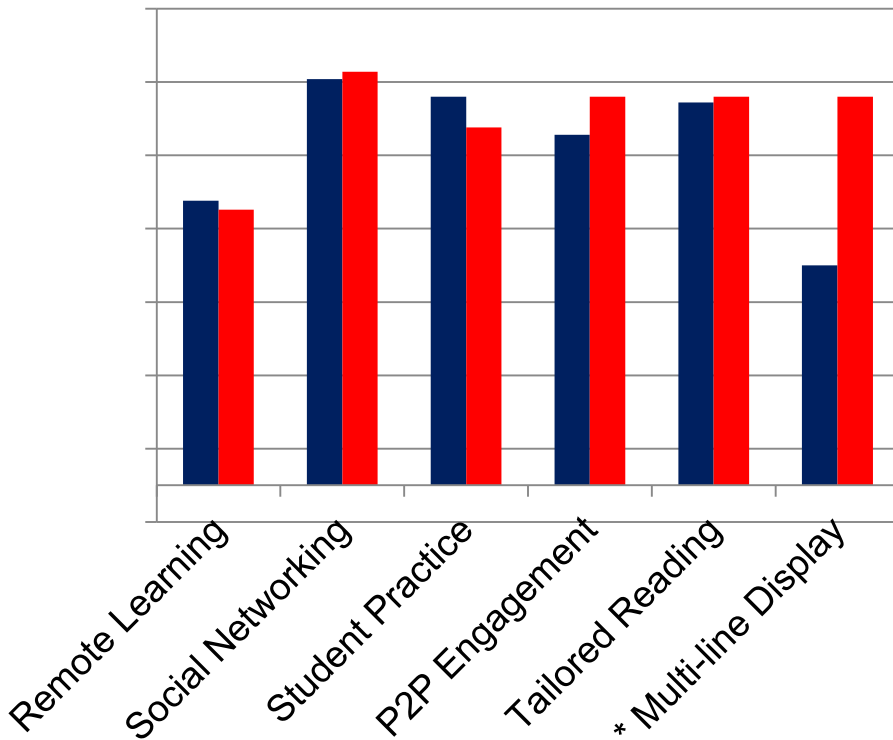
Future Technologies

- Professional social networking (#1)
- Practice exercises (for students) (#2)
- Tailored reading levels (#3)
- Peer-to-peer engagement (#4)
- Multi-line braille displays (#5)
- Remote learning (#6)

Future Technologies: A Comparison

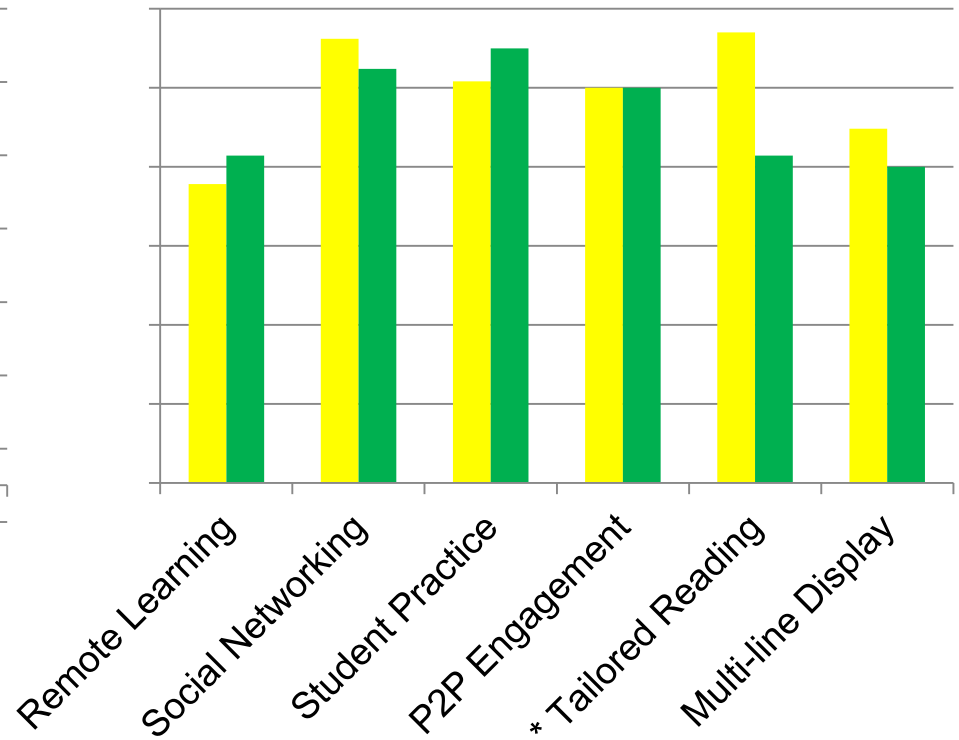
Rehab vs TVI

■ Rehab ■ TVI



Sighted vs Blind/Low Vision

■ Sighted ■ Blind/LV



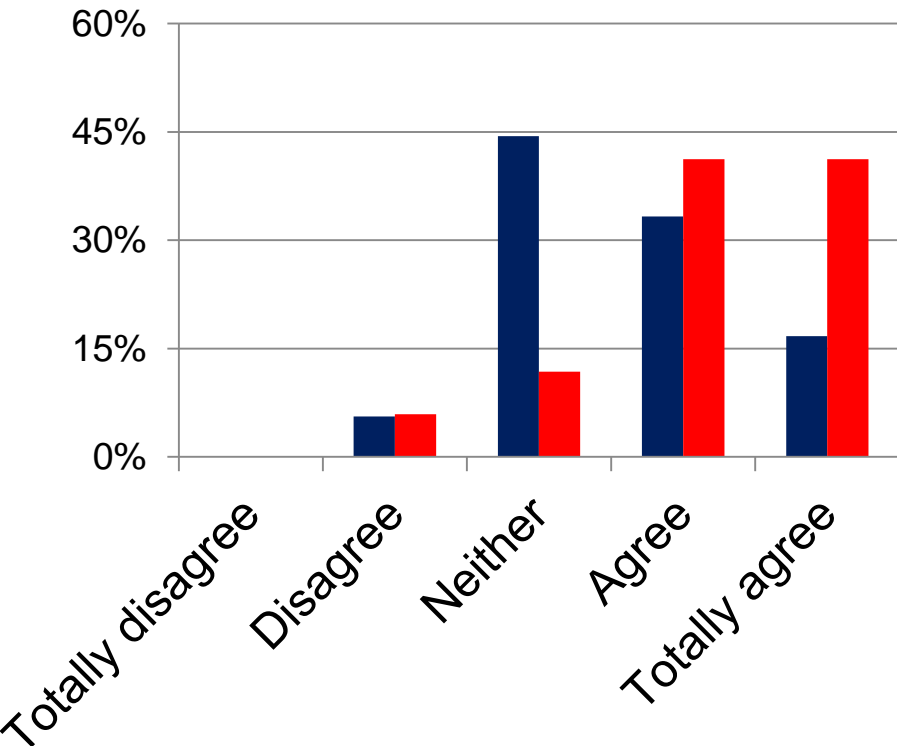
*p < .05

Technology as a Motivator

The use of technology within braille instruction encourages and better motivates students to learn braille

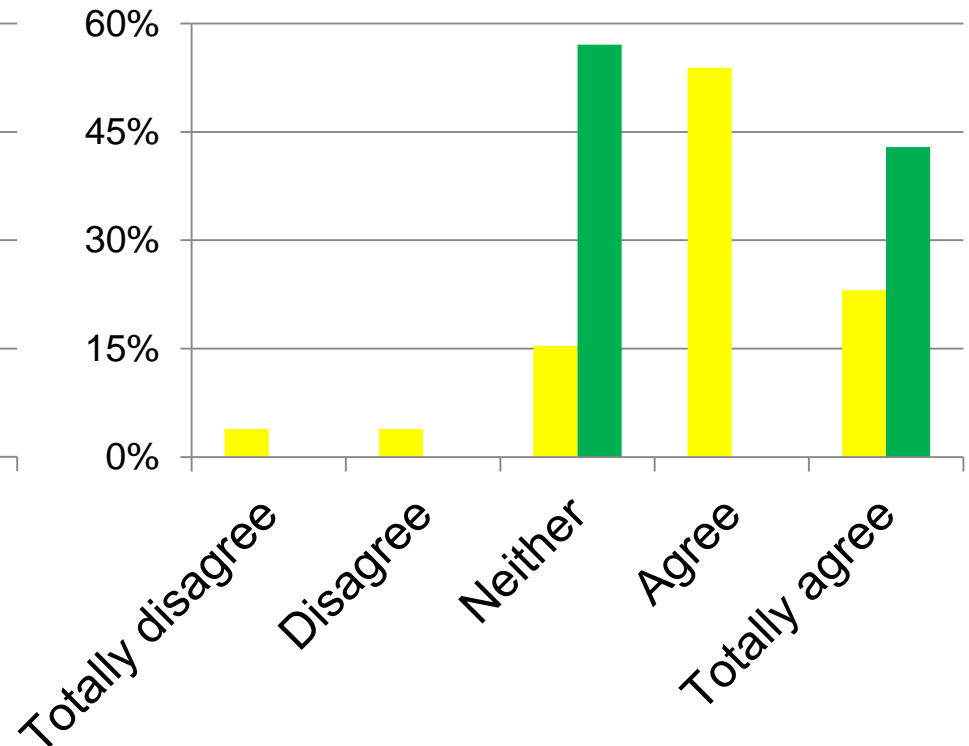
Rehab vs TVI

■ Rehab ■ TVI



Sighted vs Blind/Low Vision

■ Sighted ■ Blind/LV

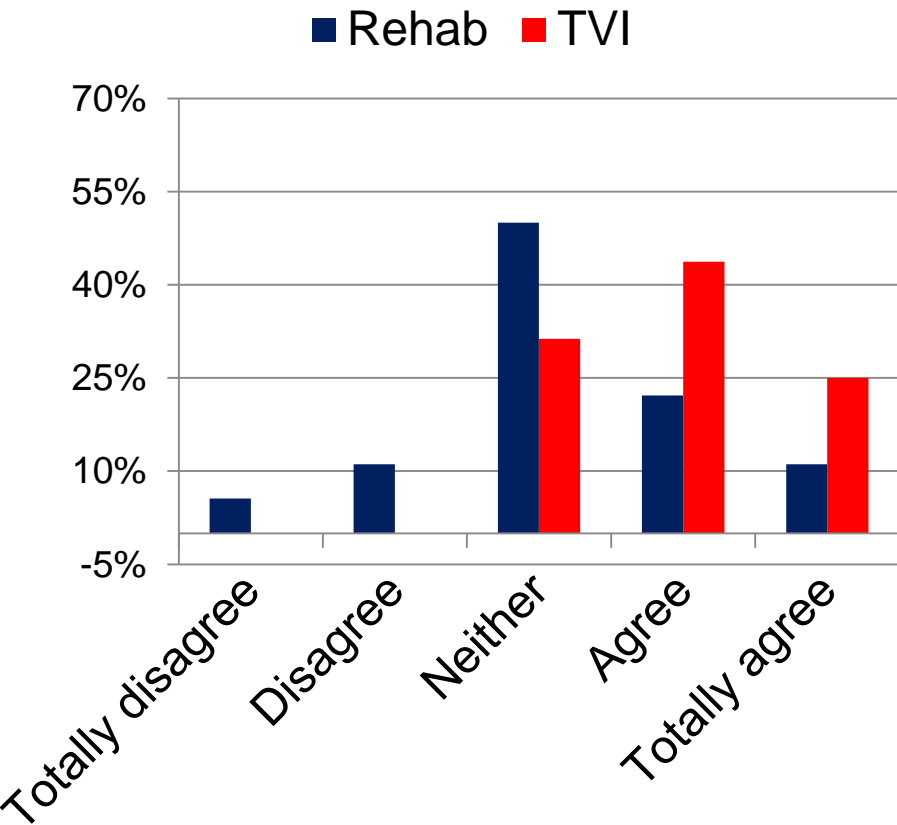


$p = .0497$ (Rehab vs TVI)

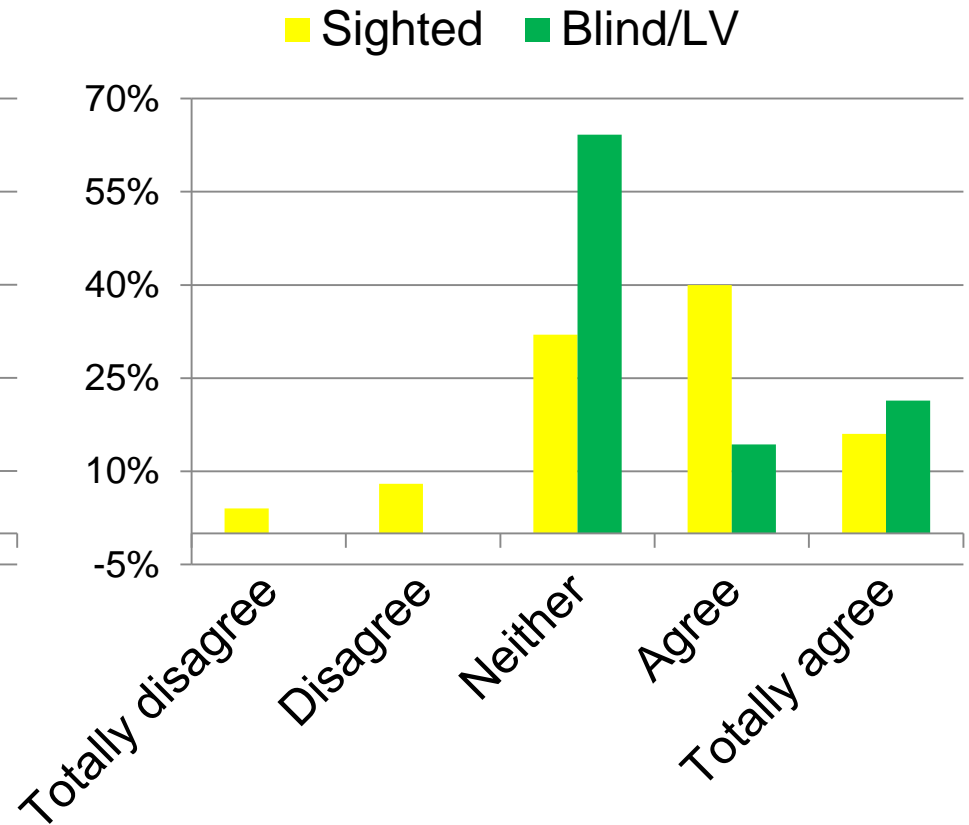
Technology and Learning Outcomes

The use of technology within braille instruction improves learning outcomes (as compared to teaching without the use of technology) for students learning braille

Rehab vs TVI



Sighted vs Blind/Low Vision



$p < .05$ (Rehab vs TVI)

Discussion

- Technology used less with seniors
- TVIs use technology more frequently
- Rehab specialists feel less up-to-date and use technology less frequently
- Differences between blind/sighted
 - Technology less of a threat for blind respondents
 - Sighted instructors more interested in tailored reading levels
 - TVIs more interested in multi-line braille displays

Discussion – Future Research

- *How* is technology being used?
- *Why* are there disparities between Rehab/TVI in technology use?
 - Training and cont. ed. opportunities?
 - Perceptions about client abilities?
- Need to validate perceived benefits of technology