# Frequency of computer use as a moderator of caregiver self-efficacy following a web-based problem-solving intervention for adolescents with TBI

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## Caregiver outcomes following pediatric TBI

- Parent/caregiver burden and psychological distress increases after pediatric TBI (Wade, Taylor, Drotar, Stancin, & Yeates, 1998)
- Exacerbated by many factors:
  - Greater injury severity (Wade et al., 1998; 2004)
  - Chronic family stresses (Wade et al., 2004)
  - Maladaptive coping strategies (Wade et al., 2001; Yeates et al., 2002)
  - Unmet health care needs (Aitken et al., 2009)

## Importance of caregiver outcomes

- Research underscores the importance of caregiver functioning for understanding post-TBI recovery of the child (Taylor et al. 2001; Taylor et al., 2002)
  - Higher parent distress at 6 months post-TBI was associated with more child behavior problems at 12 months (Taylor et al. 2001)

## Family problem-solving following pediatric TBI

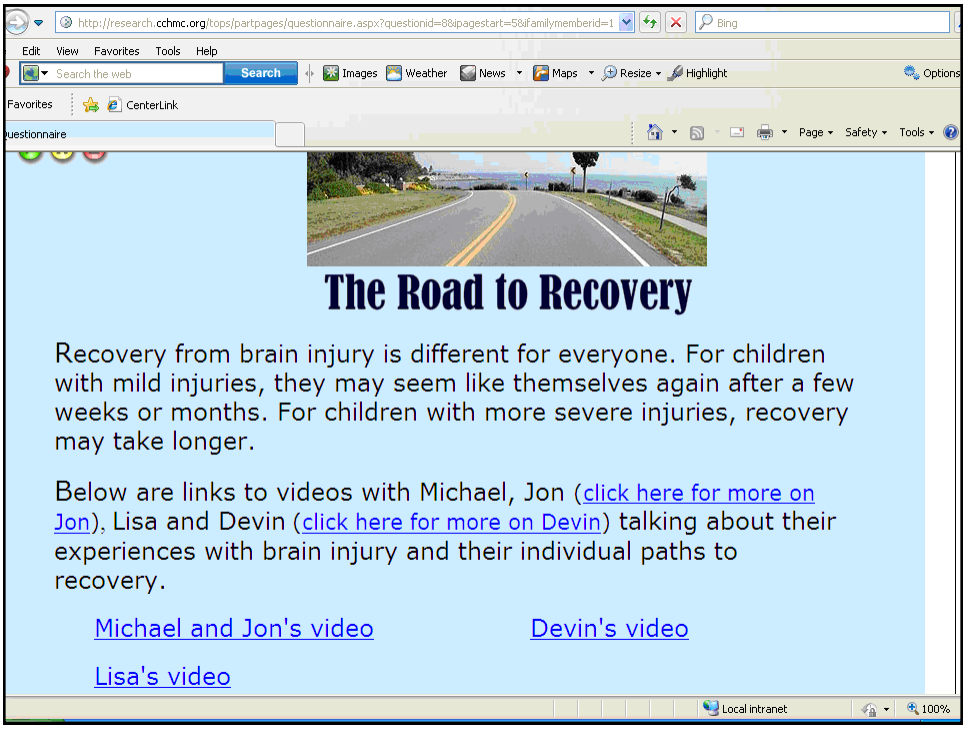
- RCT of online problem-solving intervention: study period 2000-2003
  - Online family problem- solving versus only internet resources: reduced caregiver anxiety, depression, and global distress
  - Intervention not effective in reducing distress for the 30% of parents who did not own a home computer prior to the study
  - Non-adherence mediated relationship between lack of computer ownership and poorer treatment response (Carey, Wade, & Wolfe, 2008)

## Current study design

- Counselor Assisted Problem-solving (CAPS)
- Study period: 2007-2011
- Baseline: initial visit to family home
  - Caregiver self-efficacy scale (CSES)
  - Frequency of computer use
    - Non-frequent users: indicated that they did not use a computer or used a computer less than five hours in the last week
    - Frequent users: five hours or more in the last week
- Randomly assigned to CAPS or IRC
- Demonstrated how to access online resources
- If in CAPS, how to utilize Skype
- Post-intervention follow-up 6 months after baseline visit

## CAPS intervention

- Family identified a problem
- Self-guided web sessions: video clips, exercises, and assignments
- Biweekly Skype sessions with therapist in months 1- 3 (7 total)
  - Review skills from web session
  - Practice skill using situation family identified
- Individualized portion: 2 sessions per month in months 4 and 5, as needed ( up to 4 total)
- 1 therapist session in month 6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The Road to Recovery
Recovery from brain injury is different for everyone. For children with mild injuries, they may seem like themselves again after a few weeks or months. For children with more severe injuries, recovery may take longer.
Below are links to videos with Michael, Jon (click here for more on Jon), Lisa and Devin (click here for more on Devin) talking about their experiences with brain injury and their individual paths to recovery.
Michael and Jon's video
Devin's video
Lisa's video
Local intranet
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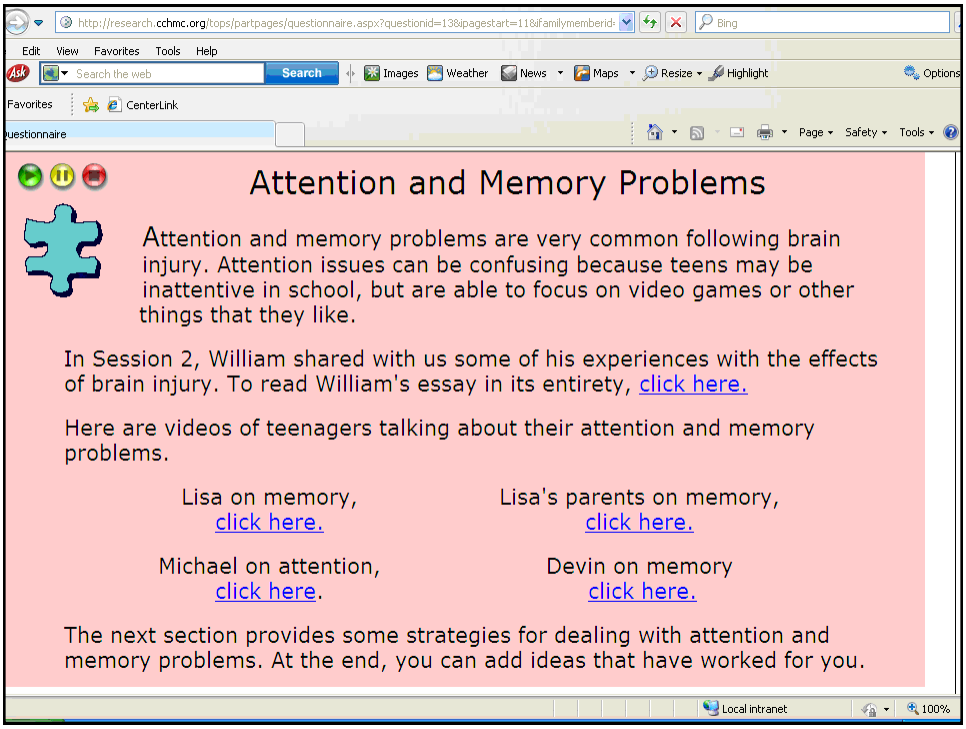
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Attention and Memory Problems
Attention and memory problems are very common following brain injury. Attention issues can be confusing because teens may be inattentive in school, but are able to focus on video games or other things that they like.
In Session 2, William shared with us some of his experiences with the effects of brain injury. To read William's essay in its entirety, click here.
Here are videos of teenagers talking about their attention and memory problems.
Lisa on memory, click here.
Lisa's parents on memory, click here.
Michael on attention, click here.
Devin on memory click here.
The next section provides some strategies for dealing with attention and memory problems. At the end, you can add ideas that have worked for you.
Local intranet
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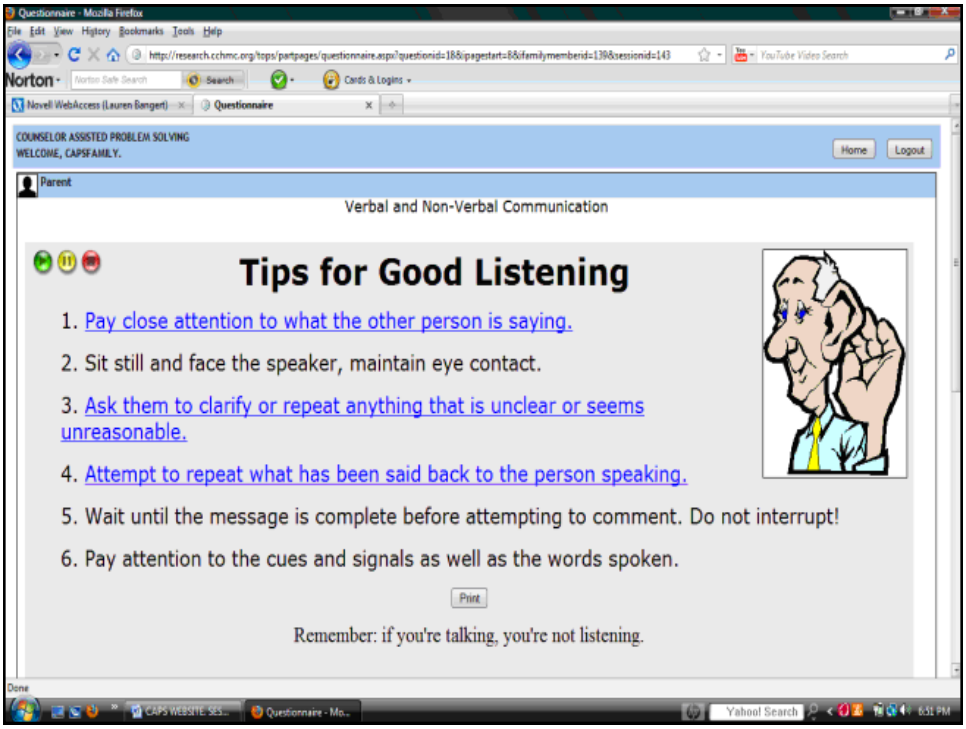



## Current study

- Aim: examine frequency of computer use as a moderator of post-intervention (6-month) CSES
- Hypothesis: high frequency computer users would evidence greater improvements in caregiver outcomes following the CAPS intervention

## Pre-intervention computer use

- Regular computer users: 61% (*n* = 35) of CAPS and 65% (*n* = 41) of the IRC
- In home computer prior to intervention: 73.8% of CAPS vs. 83.6% of the IRC
- Rated computer skills as below average to poor: 61.4% of the CAPS vs. 68.3% of the IRC
- Group differences NS (*p* > .05)

## Participants

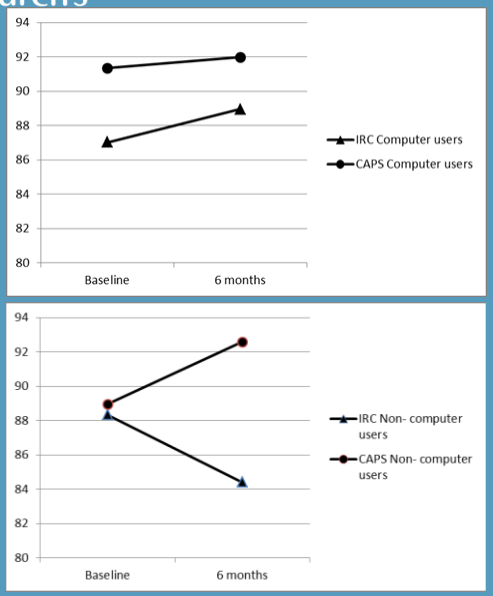
| | IRC (n = 67) | CAPS (n = 65) | t/ chi square |
|---|---|---|---|
| Child' age at injury | 14.67 (1.77) | 14.40 (1.68) | .91 |
| Years since injury | .29 (.14) | .30 (.16) | -.59 |
| N/ % non-white | 14 (19%) | 13 (20%) | .01 |
| Lowest GCS score | 10.03 (4.33) | 10.08 (4.85) | -.06 |
| Caregiver age | 42.84 (6.45) | 41.91 (7.35) | .77 |
| Median income | $65,912 (22.84) | $71,325 (32.19) | -1.11 |
| Caregiver edu N (% hs diploma or less) | 33 (49.2%) | 26 (40.0%) | 1.14 |
| N/ % married | 40 (59.7%) | 42 (64.6%) | .34 |
| CSES | 87.16 (10.86) | 90.16 (7.43) | -1.84 |

Note: all *p*'s > .05.

## Post-intervention caregiver efficacy: 6-months

- Correlations of demographics and computer use NS and ranged from -.18 (race and caregiver education) to .15 (computer use and caregiver education)
- Group x computer use interaction
  - Controlling for group (CAPS or IRC) and baseline (pre-intervention) CSES scores
- Non-frequent computer users: CAPS significantly higher CSES than IRC, $F$ (41) = 7.15, p = .01.
  - Moderate effect size (Cohen's $d$ = .51)
- Frequent computer users: NS group differences $F$ (74) = .05, $p$ = .82.

## Post-intervention caregiver efficacy: 6-months



## Discussion

- As access to technology has increased, the moderating influence of frequency of computer use has shifted
- Contrary to earlier studies conducted less than a decade ago, these findings suggest that infrequent computer users experience may be equally or more likely to benefit from web-based interventions
  - Infrequent technology-users may experience greater increases in caregiver efficacy if their experience with technology is scaffolded by therapist

## Limitations

- Does CAPS yield better results than other interventions that offer involvements with a therapist?
- Lack of knowledge of pre-injury caregiver functioning
- Other indices of familiarity and comfort with technology needed
- Treatment fidelity
- Timing of intervention
- Representativeness of the sample

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