



## Introduction

Social Participation and Navigation (SPAN) is a technology-based program designed to promote social participation in teenagers (14-19) who have sustained a traumatic brain injury (TBI). SPAN includes three major components:

- 1) iOS Mobile Application
- 2) Video Coaching
- 3) Didactic Information- Tips and Topics

## Purpose & Objectives

A pilot study to assess the usability and feasibility of SPAN as an app-based intervention.

- Identify strengths and limitations of SPAN
- Summarize feedback on usability and feasibility
- Provide suggestions for future SPAN updates

## Background

•In addition to young children and older adults age 65+, older adolescents aged 15 to 19 are most likely to sustain a TBI.<sup>1</sup>

•Social support is crucial to psychological and physical well-being and is currently understudied.<sup>4</sup>

•Common complications with TBI affecting social participation include: **maladaptive behaviors, difficulty with self-monitoring, impulsivity, irritability, poor insight.**<sup>4</sup>

•Common complications with TBI affecting goal attainment include: **difficulty formulating and implementing goals**<sup>2</sup> and **impaired memory function.**<sup>3</sup>

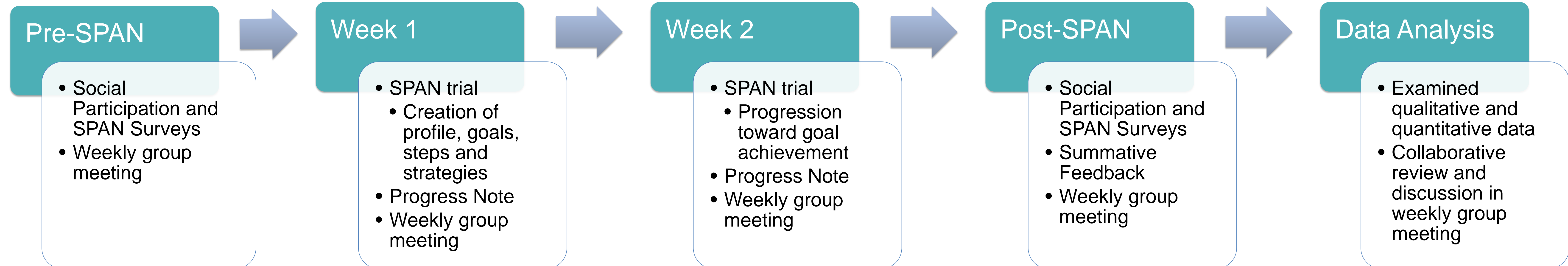
•Individuals with TBI believe the **use of mobile phones** as a medium for intervention is **socially acceptable.**<sup>2</sup> They feel more **independent and confident**, thereby increasing mood and wellbeing.<sup>3</sup>

## Participants

Four Tufts University - Boston School of Occupational Therapy students, took the dual role as participants/researchers:

- Male, 29 yo, Asian, post professional
- Female, 23 yo, Asian, post professional
- Female, 23 yo, Caucasian, entry level master's
- Female 24 yo, Caucasian, entry level master's

## Procedure



## Results

Participant Feedback	Common Responses
<b>Strengths of SPAN</b>	<ul style="list-style-type: none"> <li>•<b>Creation of own strategies</b>- in planning steps, users are able to input their own strategies</li> <li>•<b>Availability of saved strategies</b>-previously used strategies available for use with new goals</li> <li>•<b>Previous goal list</b>- after completed, goals remain visible for future reference</li> </ul>
<b>Limitations of SPAN</b>	<ul style="list-style-type: none"> <li>•<b>Steps and Strategies</b>- distinguishing the difference between them was challenging and unclear</li> <li>•<b>My Goals and Next Steps</b>- redundancy between the two tabs interfered with process flow</li> <li>•<b>Lack of Reminders</b>- users failed to meet set deadlines</li> <li>•<b>Compatibility</b>- application only designed for iOS software (iPhones/iPads)</li> <li>•<b>No progress monitoring</b>- successful completion of steps and goals is not celebrated or tracked</li> </ul>
<b>Suggestions for SPAN</b>	<ul style="list-style-type: none"> <li>•<b>Calendar View</b>- visual representation of timelines, allowing users to set long term goals and repeat goals biweekly, monthly, etc.</li> <li>•<b>Push Notifications</b>- reminders of upcoming due dates</li> <li>•<b>Elimination of Next Steps Tab</b>- incorporate all aspects into My Goals tab</li> <li>•<b>Interactive Planning Wizard</b>- with capabilities to act like an online coach</li> <li>•<b>Strategy Bank</b>- separate location for retrieval of previously used strategies to prevent an overwhelming, extensive drop down menu</li> </ul>

## Discussion

- Participants found creating self-made goals, steps, and strategies was useful for achieving goals, consistent with a previous study.<sup>4</sup>
- Participants perceived that SPAN would be useful for the target population with modifications and coaching.
- The use of push notifications was both suggested by participants and cited by prior research as effective for task completion.<sup>3</sup>
- Suggestions are aimed at modifications that will ensure the target population can successfully navigate the application when coaching has been terminated.<sup>4</sup>
- Limitations include: small sample size; not representative of target population; absence of coaching component and different frames of reference among participants when answering surveys.
- Because of the above limitations, participants rated SPAN as more understandable than useful.

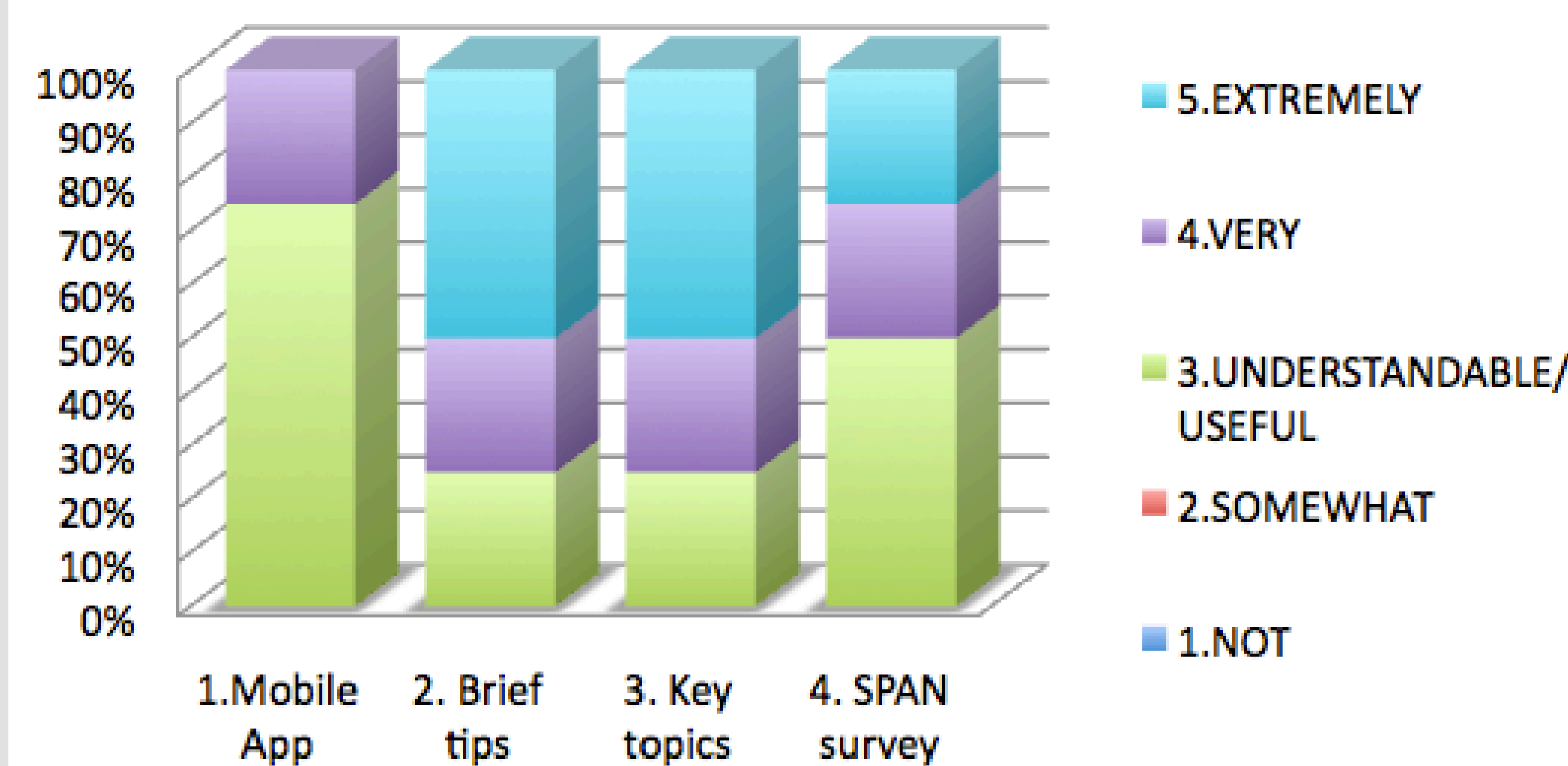
## Future Work

Results from this pilot will inform updates made prior to phase three of the larger study, a 10-week trial with teenagers with TBI (n=20) paired with college student coaches.

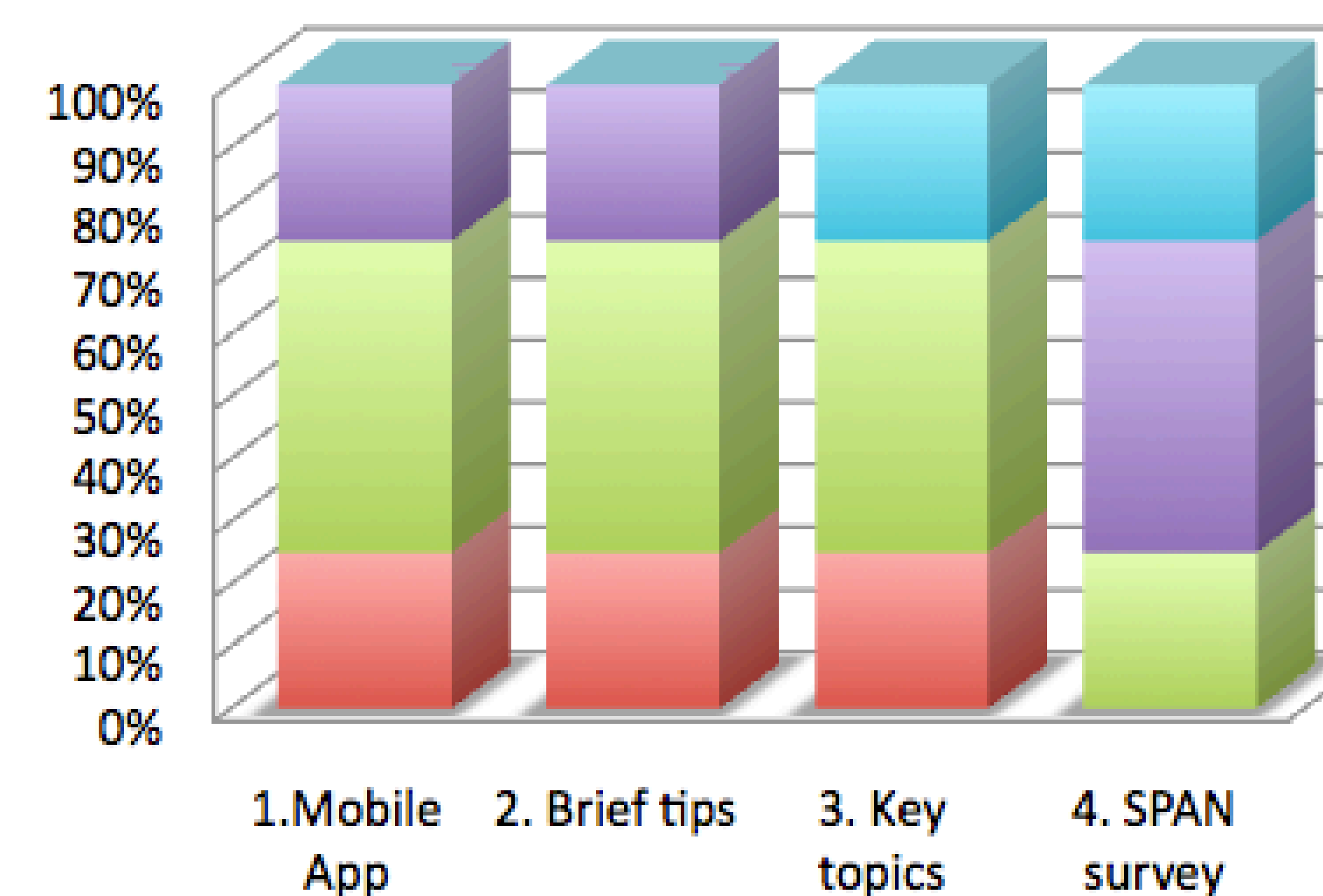
## References

1. Center for Disease Control and Prevention. (2006). *Get the Stats on Traumatic Brain Injury in the United States*. U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/>
2. Culley, C., & Evans, J. (2010). SMS text messaging as a means of increasing recall of therapy goals in brain injury rehabilitation: A single-blind within subjects trial. *Neuropsychological Rehabilitation: An International Journal*, 20(1), 103-119. doi: 10.1080/09602010902906926
3. Ferguson, S., Friedland, D., & Woodberry, E. (2015). Smartphone technology: Gentle reminders of everyday tasks for those with prospective memory difficulties post-brain injury. *Brain Injury*. doi: 10.3109/02699052.2014.1002109
4. Glang, A., Todis, B., Cooley, E., Wells, J., & Voss, J. (1997). Building Social Networks for Children and Adolescents with Traumatic Brain Injury: A School-Based Intervention. *Journal of Head Trauma Rehabilitation*, 12(2), 32-47. doi:10.1097/00001199-199704000-00005

## Understandable



## Useful



## Acknowledgements

Funding for larger study from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR; grant #90IF0059-01-00) Special thanks to Shari L. Wade, PhD, Cincinnati Children's Hospital Medical Center and Jeremy Johnson, MS, Georgia Institute of Technology