Social Participation And Navigation (SPAN):
An app-based coaching intervention for teenagers with TBI

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Disclosures

- **Dr. Bedell (presenter) and his coauthors has the following interest to disclose:**
  - **Grant funding to support development and testing of Social Participation And Navigation (SPAN) was received from:**
    - **National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant #H133G130272). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS), USA.**
    - **The contents of this presentation do not necessarily represent the policy of NIDILRR, ACL, HHS.**

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Multi-site & interdisciplinary study
Affiliations & Funding

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- **Cincinnati Children's Hospital Medical Center:** Shari Wade, PI, Megan Narad, Jessica King
- **University of Wisconsin-Madison:** Lyn Turkstra, Co-I
- **Georgia Institute of Technology:** Jeremy Johnson
- **Children's Healthcare of Atlanta:** Julie Haarbauer-Krupa

- **Funding: National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant #H133G130272)**
- NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS), USA.

Objectives

- To describe SPAN and rationale for its development

- To briefly report on 4-week usability trial with initial prototype (*with 4 teenagers with TBI*):

- To discuss recommendations for SPAN for use in our current 10-week implementation trial

- To answer questions and generate discussion

Rationale for SPAN

- Lack of evidence on programs to promote social participation of teenagers with TBI/ABI (Agnihotri, et al., 2010)

- Evidence that peer mentors/coaches can
  - Help youth identify and work on goals and solve problems
  - provide youth with emotional support along the way
  (Keller et al., 2005; Rhodes, et al, 2006; Struchen, et al, 2011; Williams, et al, 2012; Zand, et al, 2009)

- Promising participation approaches with other populations (Dunn, et al, 2012; Glang, et al., 1997; Graham, et al., 2009; 2010; Palisano, et al., 2013)

- Key features:
  - Goal setting and problem solving
  - Top-down approach targeting real-life goals and settings (Brewer, et al., 2014; Novak, 2014; Ylvisaker, et al, 2005)

- Teens frequently use smart phones and apps in their everyday lives (Lenhardt, 2015)

Developmental Process

- Informed by work of our interdisciplinary SPAN research team and colleagues that have influenced us*

- Focus groups with stakeholders (teens and college students with and without TBI; parents of teens with TBI)

- Development of content, procedures, and i-phone app prototype

- 4-week usability test of app with coaching support (*this study*)

- Advisory board feedback throughout

- Further refinements prior to larger 10-week trial (*in progress*)

*Beauchamp & Anderson, 2010; Bedell, et al, 2005. Haaurbaur-Krupa, et al., 2010; King, et al, 2003; Law, 2002; Turkstra, et al., 2015; Wade, et al, 2010; Ylvisaker, et al, 2005
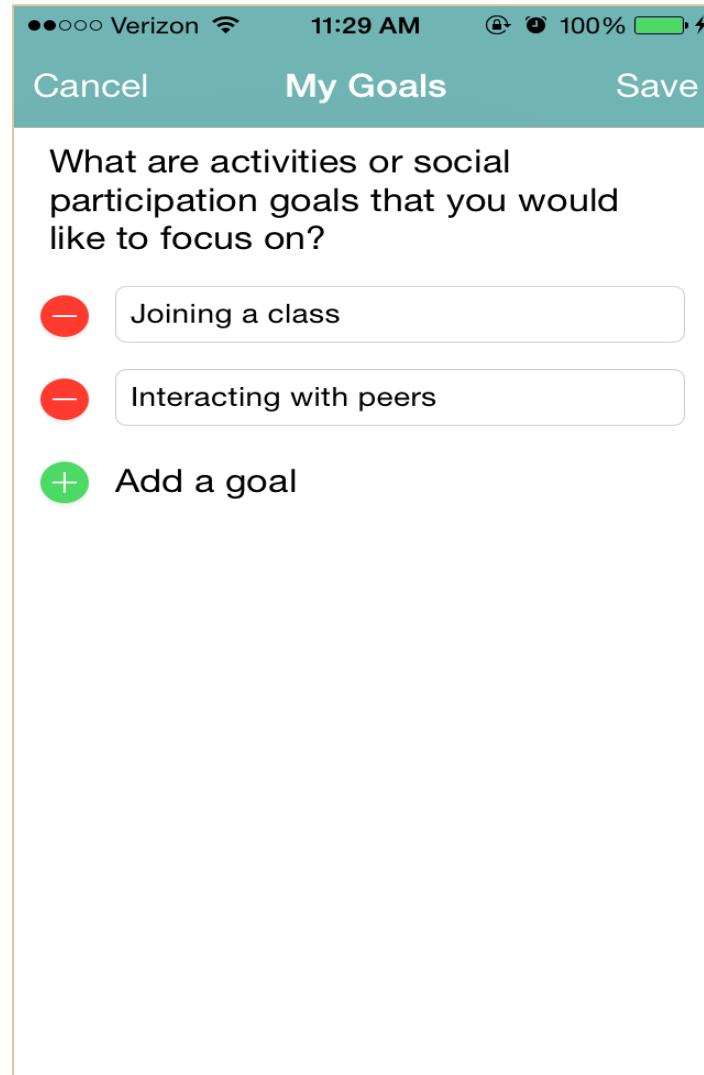
SPAN: Content & procedures

1. **iPhone app to support goal setting and implementation** of planned steps and strategies to accomplish social participation goals

2. **Teen and coach profiles**

3. **Online Key Topics and Brief Tips** with information and strategies to support social participation
   - Problem solving, self monitoring, self control, staying positive, joining conversation/groups

4. **Weekly coaching sessions <u>via</u> Skype**
   - College students complete **coach session notes**

5. **Coach training and weekly supervision** (online; in-person as needed)

App Design

Setting Social Participation Goals

Identifying Strengths

Identifying Challenges

Accomplishing Participation Goals
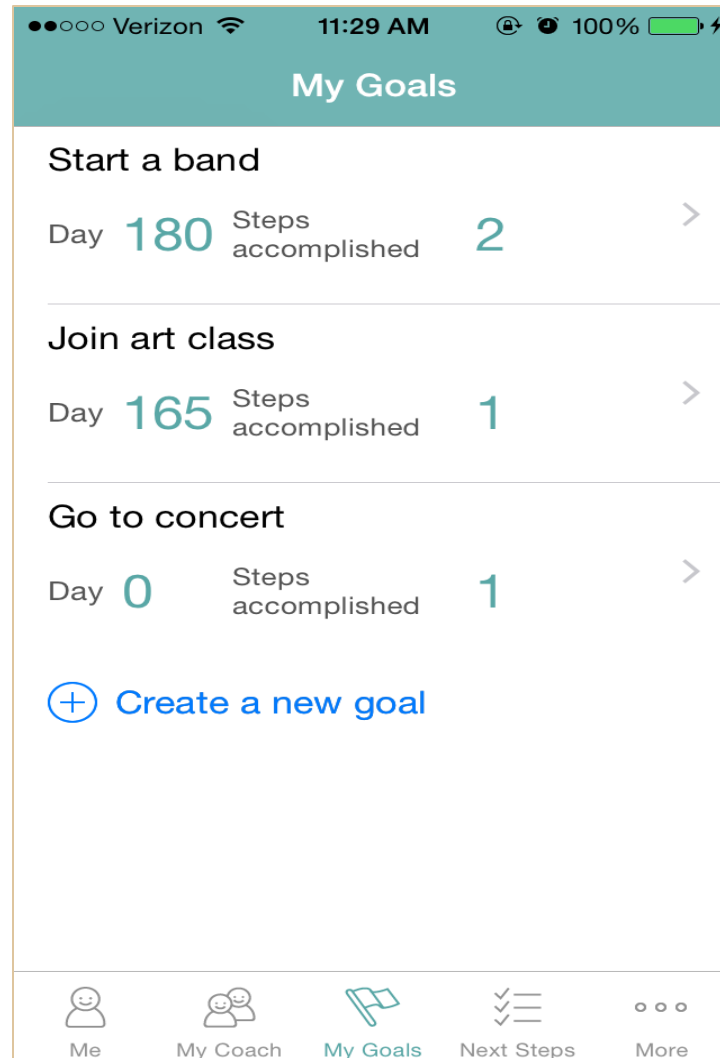
Planned steps to reach goals

Strategies for reaching goals
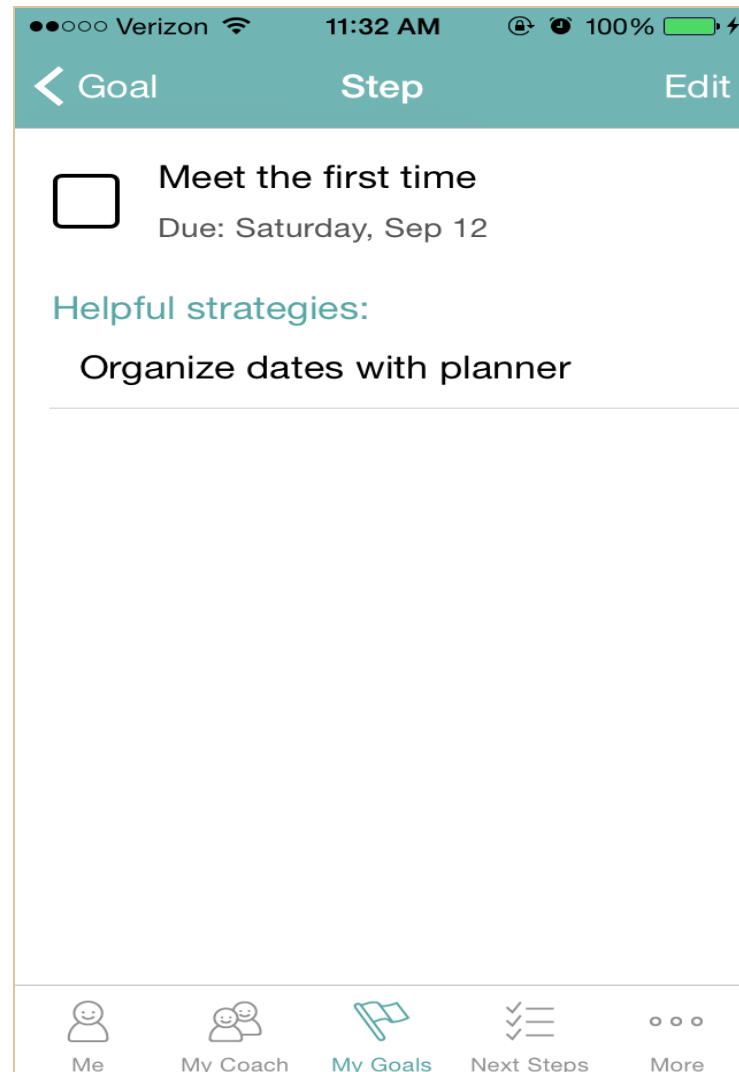
SPAN Usability Study

SAMPLE:

- **4 teens (3 females, 1 male)**
  - Teens were, on average, 15.73 years old and injured an average of 8 ½ years earlier
- **4 coaches**
  - 2 female graduate students in Occupational Therapy
  - 2 male graduate students in Speech Pathology/Neuroscience

PROCESS:

- Teens and coaches met weekly for **four weeks via Skype**
- Coaches met weekly for supervision (Clinical Psychologist & Occupational Therapist)

Measures

1. Type and number of goals achieved and action plans were recorded.

2. Satisfaction and usability surveys designed for study were completed by teenagers, parents and college student coaches.

3. Coach session notes (process and outcomes data)

4. Pre- and post-test measures completed by teenagers and parents:
   a. The Social Competence Scales of the Child Behavior Checklist and Youth Self Report (Achenbach, 1991)
   b. The Quality of Communication Life Scale (Frattali, et al., 2004) modified for adolescents (Burgess & Turkstra, 2010)

Teenagers' Goals & Plans

Goals	Steps for Goal Achievement
Become more social and meet new friends	1. Talk to new people 2. Do more one-on-one work with classmates to build more intimate acquaintances
Spend more time with extended family	1. Call grandmother to schedule a visit
Plan an outing with friends	1. Start a conversation with friends to gather interest and ideas
Keep up with existing friendships	1. Text friends more often 2. Make plans to hang out outside of school 3. Talk to people in person more often
Hang out with friends outside of school	1. Use occasions (holidays, birthdays, etc.) to make plans 2. Engage in activities that keep you occupied
Practice cello more regularly in a social way	1. Talk to acquaintances 2. Talk to and practice with cello instructor 3. Discuss music interests, theory, or practice techniques with other musicians
Invite a friend to go to the amusement park	1. Decide which friend to invite 2. Invite friend to the park 3. Follow through with plan and go to amusement park with friend

Satisfaction with SPAN

(1 = not; 2=somewhat; 3=helpful; 4=very 5 = extremely)
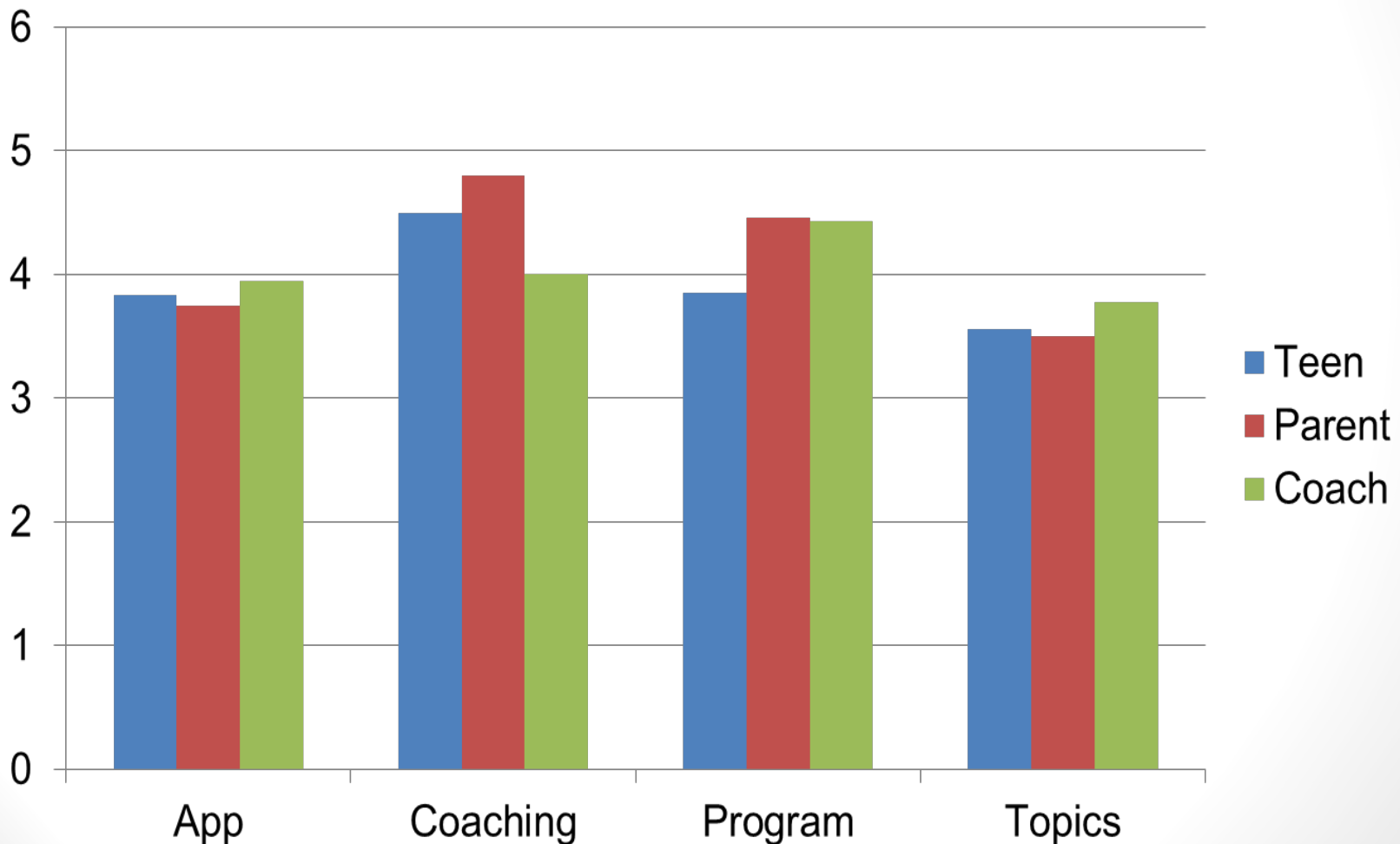
Additional feedback

- **Benefits:**
  - SPAN prototype was feasible to implement
  - Most satisfied with key features
  - Liked coaching for building rapport and trouble-shooting around issues (coach & teen)
  - Step by step goal-setting process leads to real outcomes.
  - Valuable experience for both parties

- **Concerns/discussions:**
  - Challenges with scheduling Skype visits
  - Key topics were too long, used jargon & not so enjoyable to read
  - Confusion about difference between 'steps' and 'strategies'
  - Some initial navigation challenges – limited in-app directions
  - Not possible to share app while chatting
  - No push notifications (reminders about steps and timelines)
  - Difficult to know how to manage parental involvement (coaches)
  - What is "social participation" (team)

Change from pre-test to post-test

	Pre-test Mean (SD)	Post-test Mean (SD)	Effect size (Cohen's d)
Social Competence (Teen - YSR)	48.25 (9.91)	52.50 (4.12)	**0.56**
Social Problems (Teen - YSR)	55.25 (4.65)	52.00 (2.00)	**0.91**
Total Problems (Teen - YSR)	48.25 (5.56)	42.75 (3.77)	**1.16**
Quality of Communication Life (Teen)	4.07 (0.57)	4.41 (0.53)	**0.62**
Social Competence (Parent - CBCL)	56 .00 (8.87)	57.00 (14.70)	0.08
Social Problems (Parent - CBCL)	56.25 (9.32)	58.00 (13.47)	0.15
Total Problems (Parent - CBCL)	47.00 (10.80)	46.50 (14.93)	0.04

Change from pre-test to post-test: Summary

- Increase in self-reported social competence scores on the Youth Self Report (YSR) = medium effect size.

- Decrease in self-reported social problems and total behavior problems on YSR = large effect sizes.

- Increase in Quality of Communication Life scores = medium effect size.

- No to very small change in parent-reported scores (Child Behavior Checklist – CBCL)

Recommendations

- Make app easier to use by building a tutorial and simplifying in-app instructions and integration.

- Provide programmed reminders about action steps planned on specific days.

- Allow screen sharing on the iPhone between teen and coach.

- Shorten key topics, make more interesting, add narration and hyperlinks, remove jargon.

- Create clearer expectations regarding parents' roles

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Thank You!

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