

Social Participation And Navigation (SPAN): Usability testing of an app-based coaching intervention for teenagers with TBI

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Background & Rationale

- Teens with traumatic and other acquired brain injuries (TBI/ABI) often experience social participation restrictions in school and community activities.¹⁻³
- Lack of evidence on programs to promote social participation of teenagers with TBI/ABI.⁴
- Evidence that peer mentors/coaches can help youth work on goals and solve problems, and provide them with emotional support.⁵⁻⁹
- Teens frequently use smart phones and apps in their everyday lives¹⁰
- Social Participation And Navigation (SPAN) was designed to address social participation needs of teenagers with TBI/ABI and was informed by our prior work and those that have influenced us.¹¹⁻¹⁴

Objectives

- To describe the initial SPAN prototype
- To report on 4-week usability trial with initial prototype
- To discuss recommendations for SPAN for use in current 10-week implementation trial

Sample, Procedures & Methods

SAMPLE

- 4 teens (3 females, 1 male), Ages 15-17.5 (mean=15.75) years old, injured 4-11 (mean 8.5) years earlier; initial injury ranged from severe to complicated mild.
- 4 coaches (2 female graduate students in Occupational Therapy; 2 male graduate students in Speech Pathology / Neuroscience)

SPAN CONTENT & PROCEDURES

- **iPhone app** to support goal setting and implementation of planned steps and strategies to accomplish goals
- **Key Topics and Brief Tips** in app with information and strategies to support social participation:
 - Social participation, problem solving, self monitoring, self control, staying positive, joining conversations
- **4 weekly coaching sessions via Skype** (~45 minutes)
 - Coach session notes written & reviewed in supervision
- **Coach training and weekly supervision** (online; in-person as needed)

METHODS

- Type and number of goals achieved and action plans recorded (*teenagers*)
- Usability surveys designed for study (*teenagers, parents and college student coaches*)
- Pre- and post-test measures (*teenagers and parents*):
 - Social Competence Scales of the Child Behavior Checklist (CBCL) and Youth Self Report (YSR)¹⁵
 - Quality of Communication Life Scale¹⁶ modified for adolescents¹⁷

Results

Goals and Action Plans

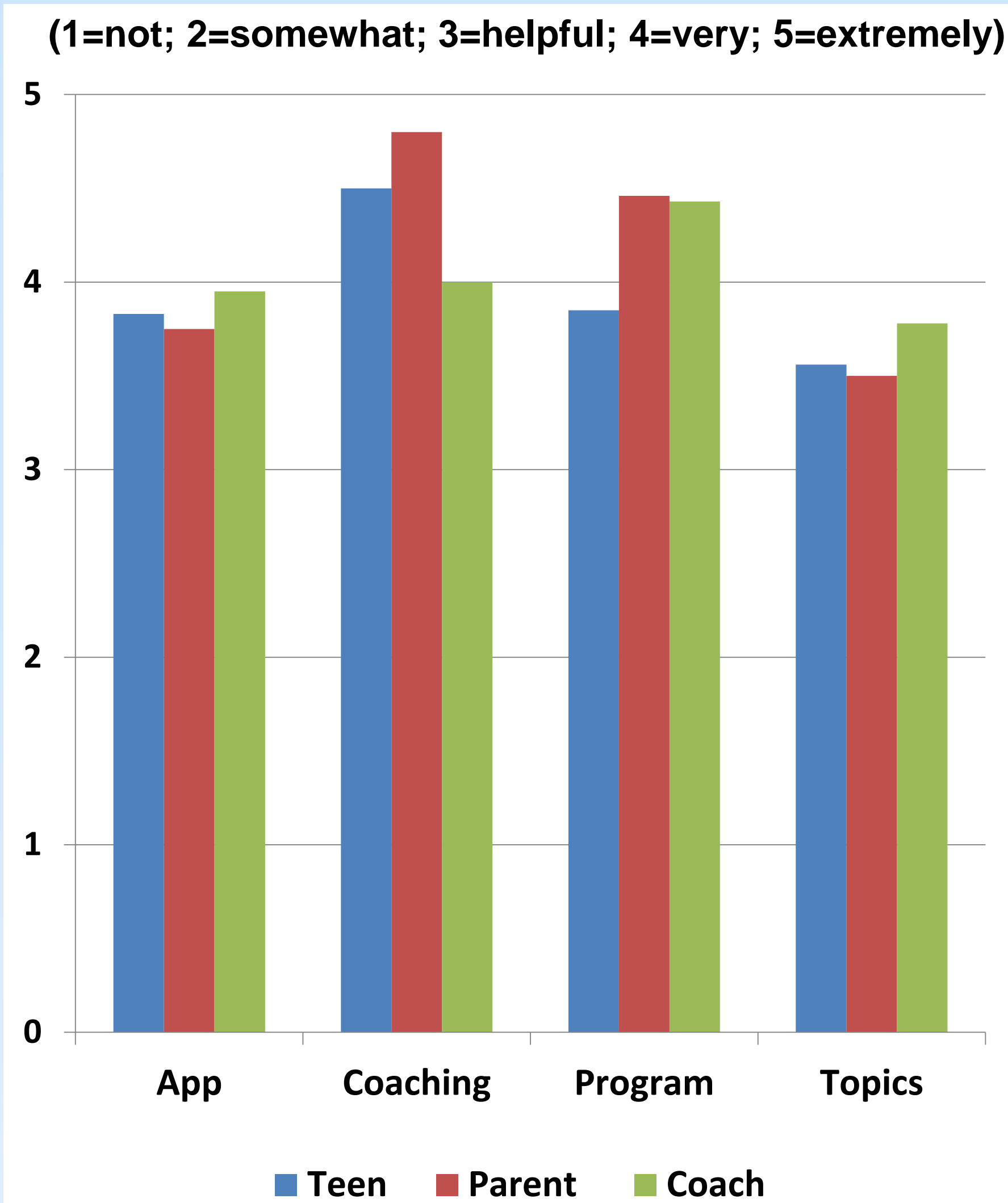
Goals	Steps for Goal Achievement
Become more social and meet new friends	1. Talk to new people 2. Do more one-on-one work with classmates
Spend more time with extended family	1. Call grandmother to schedule a visit
Plan an outing with friends	1. Start a conversation with friends to gather interest and 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) to make plans 2. Do activities with friends that keep you occupied
Practice cello in a social way	1. Talk to acquaintances 2. Talk to and practice with others 3. Discuss music interests, theory, or practice techniques with other students
Invite a friend 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

Changes from Pre- to Post- testing

Measures	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 (QCL; 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

- Increase in Youth Self Report (YSR)¹⁵ social competence scores = medium effect size.
- Decrease in YSR social problems and total behavior problem scores = large effect sizes.
- Increase in QCL⁷ scores = medium effect size.
- No to very small change in parent-reported scores (Child Behavior Checklist-CBCL)¹⁵

SPAN Usability



Additional Feedback

BENEFITS

- SPAN prototype was feasible to implement
- Most participants 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-life outcomes
- Valuable experience for both parties

CHALLENGES

- Some difficulty scheduling Skype sessions
- Key topics 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 counts as a "social participation" goal? (team)

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Recommendations & Discussion

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

DISCUSSION

- SPAN prototype feasible to use and most found helpful
- Promising results but based on sample of 4, only implemented for 4 weeks, and had graduate student coaches.
- Parents may have been less aware of changes perceived by teenagers due to limited involvement and time frame.
- SPAN was modified from feedback and currently being used and tested in a 10-week trial with larger sample (n=20), and undergraduate student coaches (i.e., our intended coach group).

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