

Translating an In-Person Brief, Bystander Bullying Intervention (STAC) to a
Technology-Based - Phase II

NCT05572398

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Study Protocol and Statistical Analysis Plan

Study Protocol

3C.5 Aim 1: Develop a fully-programmed, media-rich, interactive STAC-T intervention in English and Spanish that consists of (1) core modules providing interactive training on essential topics (e.g., bullying, bystander roles, the four STAC strategies), (2) interactive skills practice with avatars moving through bullying scenarios with feedback, and (3) booster sessions in which students report strategies used and receive feedback and badges for intervening. Program user-interface (UI) design and programming will be conducted using similar application approaches used in Phase I.

3C.5.1. Prototype Programming and App Development. STAC-T will be built on a full stack web application using HTML/JavaScript as its main interface. React.js will be the front-end framework. Animations will use GreenSock Animation Platform and CSS 3 transitions. Look and feel will be designed with Adobe Illustrator and developed using SASS and CSS 3.0 with HTML elements plus SVG, PNG, and JPG images and graphics. PHP will be used to create spreadsheets populated with data collected from the front end. Localize[®] software will be used to provide initial digital translation of the website from English to Spanish. Content clarity and optimization of the website localization for the Spanish translation will also be audited and cross-validated using forward and backward translation by our bilingual study staff. The application will be hosted on a remote server provided by Klein Buendel (KB) with the following infrastructure profile: Internet information must travel through KB's Sonicwall TZ600 firewall. Traffic then moves to KB's web server, a Dell Power Edge T-430 with 128 GB of RAM, 4.5 TB available disk space on a RAID 5 redundant drive system using Windows HyperV Operating System. The virtual web server uses Windows 2012 IIS Web server software. Servers are kept in a locked room on site. The design process will be informed by: (1) the ADDIE Model, a user interface and instructional design approach; (2) the Mechanics, Dynamics, and Aesthetics (MDA) framework, a dynamic game development process that incorporates the perspective of the researcher, developer, and user; and (3) AGILE programming. This multi-model approach is systematic, flexible, and cost-effective. It ensures that all design and programming elements are aligned, and stakeholders' inputs are incorporated throughout the multi-staged development. Design elements such as space (colors, sounds, visual space), components (characters, objects), and **mechanics** (actions) will be determined for STAC-T's features (i.e., assessment, activities, games, tools).

3C.5.2. Content and Learning Elements of the STAC-T Program. Details of components programmed in Phase I were provided in **Section 3C.1c**. The previously built program will be refined and expanded in Phase II. There are two proposed modules for Phase II. **Module 1** is the core module providing training on essential topics (e.g., bullying, bystander roles, the four STAC strategies). In Phase I, three separate modules were produced which utilized real-time simulation clickable wireframes showing progression of content with still graphics. The training included the core STAC strategies (e.g., What is Bullying?, What are Bystanders?, and the four STAC Strategies). One strategy was selected and created into an interactive prototype. In Phase II, all core modules including strategies training will be built to include interactive gaming and features (e.g., drag and drop, hover, click and reveal, video, etc.). Real instances of game dynamics and mechanics can include a number of options such as badges, leaderboards, levels, points, achievements, avatars, content unlocking, quests, social recognition, teams, and virtual goods. These items target the social cognitive theory components of modeling, outcome expectancies, self-efficacy, self-regulation, identification, and reciprocity. Consistent with research on mHealth strategies for adolescents, the proposed Phase II design emphasizes gaming as a teaching strategy. These interactive components will be the centerpiece of the program. Outcomes of each game will be used to ensure information uptake and demonstrate comprehension (e.g., users must achieve a targeted score to receive a reward), thus providing feedback to participants early and often. To reinforce learning and bolster adherence, "badges" (i.e., visual icons), will be awarded intermittently. Badges are highly effective gaming tools used to encourage user engagement and build game "loyalty."

The Expert Advisory Board (EAB) and focus group feedback will help guide which additional game mechanics will be programmed for Phase II. However, planned Phase II programming will include translating static informational text from Phase I into a dynamic format through animations and game play. Graphic novel depictions of bullying scenarios will be colorized, and additional role play scenarios will be presented. An interactive avatar character to guide the user through the program will be fully developed. This avatar will be interactive with the user and will include animation and tailored responding based on users' inputs. **Module 2** will include interactive skills practice with an avatar moving through bullying scenarios with feedback. Activities will emphasize practice of the intervention content, and an emphasis will also be placed on activities that encourage participants to personalize how the information learned applies to them.

To enhance the long-term effects of the intervention, the following strategy will be used: two 15-minute online booster sessions reviewing the content of the STAC-T training as well checking-in, supporting, and brainstorming ways to effectively use the STAC strategies will be provided. Several authors have identified the importance of providing booster sessions in behavioral interventions with adolescents and have successfully implemented booster sessions in an online format.

Instructional objectives and design of the fully programmed STAC-T will be led by Midgett with assistance from Doumas and Buller and guided by the in-person STAC adapted for rural, low-income communities and input from the EAB, school personnel, and students. Students in ID and MS (n=21) will evaluate STAC-T in three iterative focus groups (n=7 per group), reviewing content, cultural relevance, look, feel and navigation of the fully programmed STAC-T (e.g., colors, themes, characters), and report perceived barriers to use and ways to optimize user engagement. Groups will be led by staff trained in focus group moderation, encouraging open, non-judgmental discussion and conducted sequentially with concurrent content and interface concepts revisions. Groups will be audiotaped, transcribed, and analyzed using NVivo. Summary reports will be prepared to finalize the fully programmed, media-rich, interactive STAC-T program.

3C.5.3. Limitations/Problems/Alternative Strategies for Aim 1. Potential problems include programming difficulties and reaching thematic saturation. We will continue to refine and adjust STAC-T using feedback from iterative rounds of focus groups as needed. In Phase I, stakeholders suggested that teacher and parent supplementary training could potentially augment the effects of STAC-T. We deliberated inclusion of this approach and determined that providing online STAC-T training for parents and teachers is beyond the scope of what is feasible with regards to budget and timeline and should be addressed in future research.

3C.5.4. Milestones/Deliverables for Aim 1. Milestone 1: Approval of Phase II Research Procedures: In Month 1-2, the EAB will review and approve the Phase II research procedures. Deliverable 1: Approved Study Protocol. Milestone 2: Development of the Specifications Document. Upon completion of the focus groups in Month 3-8, a specifications document outlining all aspects of what will be programmed in the full STAC-T intervention will be developed. Deliverable 2: Specifications Document. Milestone 3: Development of STAC-T. KB programmers will iteratively develop STAC-T in Month 4-10. Deliverable 3: Revised Specifications Document for STAC-T (as needed). Deliverable 4: STAC-T Prototype for Usability Testing. Benchmarks include thematic saturation and the completed STAC-T Prototype.

3C.6 Aim 2: Conduct usability testing of the fully programmed STAC-T in three middle schools in two states with students (n=12) and school personnel (n=12) to evaluate the user interface, ease of use, and perceived barriers to optimize the program prior to a large-scale investigation. Usability and acceptability of the prototype STAC-T will be evaluated using protocol analysis and semi-structured interviews. A sample of 12 middle school students and 12 school personnel (i.e., administrators, teachers, and counselors) from 3 middle schools (2 in ID and 1 in MS) will be enrolled (compensation = snacks for students; \$50 for school personnel). Between 5 and 10 usability testers are needed to identify most usability issues. Procedures will be similar to those proposed in Phase I and conducted in-person. The users will complete tasks while being observed and complete a usability survey. Participants will complete the SUS and a measure of content satisfaction (1=very dissatisfied, 5=very satisfied). Project staff will make notes of issues encountered

during testing. Next, participants will answer a series of interview questions to assess the fully programmed website's content and appropriateness for students at their school in a similar manner as we used in Phase I. School personnel will also respond to questions on the feasibility of using STAC-T, likelihood of using STAC-T, and potential barriers to its use at their school.

3C.6.1 Limitations/Problems/Alternative Strategies for Aim 2. Although our Phase I prototype was successful when usability tested, potential problems include programming difficulties resulting in lower SUS and satisfaction ratings. We will continue to refine and adjust STAC-T using feedback from iterative rounds of usability testing until we achieve a minimum average SUS score of 68 and acceptable participant satisfaction.

3C.6.2 Milestones/Deliverables for Aim 2. Milestone 4: Evaluation of the STAC-T Prototype. In Months 12-13, reports on the findings from the usability testing will be prepared, describing usable and valued parts of the prototype, suggestions to improve STAC-T, and feasibility and barriers to use. Programmers will use the reports to update the specifications document and provide the criteria for final development of the full STAC-T intervention. Deliverable 5: Evaluation Reports. Deliverable 6: Revised Specifications Document (as needed). Milestone 5: Final production of STAC-T. In Months 13-14, programming of the STAC-T intervention will be completed. Each component will be tested for platform stability/code errors prior to being exported to the Web server and approved for launch in the randomized trial. Deliverable 7: Fully Produced STAC-T Intervention. Benchmarks include a minimum score of 68 on the SUS and at least 75% of participants reporting satisfaction with the program and the finalized STAC-T intervention for the randomized trial.

3C.7. Aim 3: Test the fully programmed STAC-T in six middle schools in four states (n=940) through an RCT to evaluate changes in (1) knowledge, confidence, and use of the STAC strategies, (2) bullying and cyberbullying perpetration and victimization, and (3) mental health outcomes. Program appropriateness (e.g., do students learn what they are supposed to learn) and efficacy (e.g., changes in outcomes) of the fully programmed STAC-T will be tested with middle school students in rural, low-income communities in different regions of the US using a randomized controlled design over 6 weeks. The RCT is designed to be cost efficient and align with the scope of the Phase II grant while providing an initial test of efficacy, minimizing design limitations. Class periods within schools will be randomized into either the intervention or assessment-only control group. Randomization will be performed by a customized computer program written by the project biostatistician. We will recruit students from six middle schools (n=940) in ID, OR, MS, and NH. The primary outcome variables are knowledge acquisition, confidence, use of STAC strategies, bullying and cyberbullying perpetration and victimization. Secondary outcomes are mental health outcomes (i.e., depression and anxiety). Changes in knowledge and confidence will be measured from baseline to immediate follow-up; use of strategies will be measured at the 6-week follow-up and bullying and mental health outcomes will be measured from baseline to the 6-week follow-up.

3C.7.1 Limitations/Problems/Alternative Strategies for Aim 3. Potential limitations include (1) recruitment, (2) internal validity threats, (3) sources of bias, and (4) contamination. We will work closely with our school partners to maximize recruitment. If we are unable to achieve the desired sample size, we will recruit from additional schools in ID, MS, and/or NH that have committed to the project. We chose to use an assessment-only control group vs active control condition as it has been suggested to increase design stringency as research progresses from initial tests of efficacy to definitive efficacy trials. This design is also cost-effective as RCTs with more stringent controls, require larger samples. Although this design limits condition masking, we will present information during recruitment and in the consent form to minimize participant knowledge of the research design and hypotheses. Self-report instruments are open to bias; however, the use of validated measures is a strength. We have no evidence for assessment bias on study outcomes in our prior research. The possibility of intervention contamination exists; however, our prior data suggests contamination is minimal and does not impact intervention effects; although 20% of control students reported being told how to intervene, there were no differences in outcomes for these students compared to the other control students. Further, our findings from multiple RCTs using within-school randomization indicate significant effects at 6 weeks for bullying and mental health outcomes. We will control

contamination effects as needed. Although we considered randomizing by school, power analyses based on our pilot data indicated that we would need more than 20 schools to achieve adequate statistical power to detect significant effects for our primary outcome variables. Although randomizing by school may reduce some limitations and should be considered in future trials, this alternative methodology is beyond the scope of the Phase II mechanism.

3C.7.2 Milestones/Deliverables for Aim 3. Milestone 6: RCT Evaluation of STAC-T. The RCT will be conducted from Months 16-20. Participants at six middle schools in four states (n=940) will complete the trial. Deliverable 8: Final Report on Phase II Research. Benchmarks for Aim 3 include hitting successful recruitment and retention targets and significant effects on the primary and secondary outcomes.

3C.8. Target Population. The target population is middle school students in grades 6th – 8th (ages 11–14) and middle school personnel. **Figure 2** presents the participant inclusion/exclusion criteria for all study aims.

FIGURE 2: Inclusion/Exclusion Criteria for Students and School Personnel

Students	School Personnel
<i>Inclusion criteria</i>	
Enrolled in grades 6-8 in a middle/junior high school in Idaho, Mississippi, New Hampshire, or Oregon	Employed in a middle /junior high school in Idaho or Mississippi with grades 6-8
Have a desire to make a positive difference at school, be mature, and have ability to positively engage socially with peers and adults as judged by school personnel (Aims 1 and 2)	Employed as a principal, teacher, or school counselor
Speaks and reads English or Spanish	Speaks and reads English or Spanish
Parent consents and student assents for participation	Consent to participate
<i>Exclusion criteria</i>	
Participated in a previous study on STAC	Participated in a previous study on STAC
Speaks and reads only a language other than English or Spanish	Speaks and reads only a language other than English or Spanish
Does not consent/assent	Does not consent

ability to positively engage with peers and adults. Once students are identified as possible participants, the school counselor or a research assistant will briefly meet with each student individually to describe the project. Interested students will be sent home with a letter describing the project and parents will be sent information and consent via email, as well as an informed consent form for the parent/guardian to sign. All communications will be available in English and Spanish. Students will return the signed form to the school counselor or parents will return forms in postage paid envelope or electronically. Parents are provided with the PI’s contact information and are encouraged to contact her if they have questions. Students who return signed consent forms are then provided with an opportunity to assent immediately before the usability testing session. This method of recruitment and consent/assent has been used in our past research successfully. We will conduct focus groups and usability testing during school hours. Middle school administrators, teachers, and counselors will also be recruited. The team will invite school counselors to participate and to nominate teachers and administrators who demonstrate an interest in addressing bullying. All participating personnel will read and sign consent forms and receive \$50 compensation. We will conduct usability testing and individual interviews during lunch or after school hours.

3C.10. Randomized Trial Conduct (Aim 3)

3C.10.1. Recruitment. A total of 2350 students (48.0% female; ages 11-14) will be recruited from six public middle school located in rural, low-income communities in ID, OR, MS, and NH. Team members in each state will work with school counselors at the target schools. We have eight schools that have expressed commitment. Based on our prior research with middle school students in rural, low-income communities using similar recruitment strategies, we anticipate a response rate of approximately 40%, for a total sample of n=940. Class periods within schools will be randomized to the intervention or assessment-only control group. We will use student recruitment and tracking procedures used in our prior studies with good success. All students in 6th- 8th grade meeting inclusion/exclusion criteria (see Figure 2) will be recruited through a common class by grade level and all procedures will be completed during 50-minute class periods. A pre-notification, consent, and reminder letter will be sent by the school to parents of selected students at the start of the academic year. The letter will explain the study and include a project-addressed stamped envelope, project phone number, and email address. Parents will be asked to indicate consent (yes or no) and sign the form and return it in the

3C.9. Focus Groups and Usability Testing (Aims 1 and 2). Similar to our previous studies and procedures used in Phase I, we will use purposeful sampling to recruit students from three middle schools with students in ID and MS. School counselors and teachers will identify students in different peer groups utilizing a rubric with criteria including desire to make a positive difference at school, maturity, and

enclosed envelope or give to their child to bring to school. A team member will hand-deliver a letter and informed consent to students, and teachers will also be asked to send letter home with students and encourage students to discuss study participation with their parents. Schools will also send parents/guardians an email with information about the study and a link to complete informed consent electronically. Incentives include 1) \$100 for teachers and 2) a pizza party for each classroom that achieves > 60% parental consent form return rate. Intervention group procedures: Students with parental consent will be invited to participate in the study during a class period (45-50 minutes) and taken to a common location (e.g., school cafeteria). We selected in-school implementation as school personnel in Phase I indicated in-school delivery is preferable for this age group to enhance engagement. Students who provide assent will be provided with a unique study ID number, will complete the baseline assessment (10 minutes), and then will be assisted with accessing the STAC-T website and provided instructions on how to use the website and will complete Module 1 of the STAC-T intervention (30 minutes). In order not to impact two class periods in a row, students will complete Modules 1

TABLE 1: Measures

Construct	Time	alpha
Primary Outcomes		
Knowledge and Confidence (Student-Advocates Pre- and Post-Scale, SAPPS ²³)	Baseline, Immediate Post, 6 Weeks	.75 -.78
Use of STAC Strategies ^(70, 83, 93)	Baseline, 6 Weeks	-
Bullying and Cyberbullying (Bullying and Cyberbullying Scale for Adolescents, BCS-A ¹⁵¹)	Baseline, 6 Weeks	.69 -.92
Secondary Outcomes		
Depression (Center for Epidemiological Studies Depression Scale for Children, CES-DS ¹⁵²)	Baseline, 6 Weeks	.82 -.92
Anxiety (The Social Anxiety Scale for Adolescents; SAS-A ¹⁵³)	Baseline, 6 Weeks	.88 -.90

and 2 on separate days. Within three days of completing Module 1, participants will complete Module 2 of the STAC-T intervention (30 minutes) using the same procedures conducted for Module 1. Participants will then

complete an immediate post-training assessment online (5 minutes). Participants will participate in two 15-minute bi-weekly online booster sessions within 4 weeks of their training. Participants will be brought to the common location and be assisted on how to use the booster website. All participants will then complete a 10-minute 6-week assessment during class time. Control group procedures: Students with parental consent will be invited to participate in the study during class time and taken to a common location (e.g., school cafeteria). Students who provide assent will be provided with a unique study ID number and will complete the baseline assessment. Participants will complete a 6-week assessment during class time. Non-study participants: Students who are not study participants will be taken to the same location as participants but will complete an alternative online activity to eliminate potential stigmatization. Baseline Assessment: All participants will complete a survey assessing knowledge of bullying, knowledge of STAC-T strategies, confidence to intervene, bullying perpetration and victimization, mental health outcomes, including depression and anxiety, and demographic characteristics. Immediate-Post Assessment: Students in the intervention group will complete a survey assessing acceptability of the STAC-T intervention, knowledge of bullying and STAC-T strategies, and confidence to intervene. 6-Week Assessment: All participants will complete a survey similar to the baseline survey. Control students will complete a brief contamination survey.

Surveys were piloted at ≤ 10 minutes, consistent with optimum survey length for this age group.¹⁵⁰

3C.10.2. Data Collection and Measurement. Surveys will be completed online at baseline, immediate post-training, and 6-week follow-up (see Table 1). The primary outcomes are knowledge acquisition, confidence, use of STAC strategies, bullying and cyberbullying perpetration and victimization; secondary outcomes are mental health risks; we will also assess intervention contamination. All measures will be available in English or Spanish. Our team has extensive experience with survey translation to Spanish and will utilize a valid approach, including forward and backward translations.

Web Usage: Program use will be monitored using Web Trends software; tracking macro and micro level data, recording how users navigate the program, time spent on activities, response latency to items, badges earned, and scores achieved on games. Data summaries will be reviewed to understand usage patterns. Users will evaluate the program using the **SUS** at the 6-week assessment. **Contamination:** Contamination will be assessed using a 5-item survey used in our prior research at the 6-week assessment.

3C.10.3. Adherence, Dropouts, and Participant Compensation. Retention, Tracking, and Attrition: Steps will be used to minimize dropouts. Dropout will be minimized by conducting procedures during classroom time. Participant progression will be tracked. Staff will use behavioral reinforcement strategies and be trained to develop rapport with participants. These approaches will allow participants to be more direct about problems and provide a strong foundation for problem-solving. In our prior research with middle school students in rural, low-income communities, we have recruited sample sizes that align with this Phase II study and drop-out rates

vary from 6.4%–13.8%. We plan for 10% attrition. We assume equal adherence across the two groups based on our prior studies. We will create a dummy coded variable for each respondent (completers vs. dropouts) and test associations with key variables in our analytic models. If bias is identified, we will control it by adding it as a covariate. Compensation: Incentives to improve participation and study retention include 1) \$100 for teachers and 2) a pizza party for each classroom that achieves > 60% parental consent return rate.

3C.10.4. Safety Considerations. This study will include a Data and Safety Monitoring Plan. Dr. Midgett is a Licensed Professional Counselor (LPC), Dr. Doumas is a Licensed Psychologist and LPC, and Drs. Winburn and Hausheer are LPCs. They will monitor progress, discuss concerns, and take corrective actions in their states as needed. Participants who express emotional or physical distress will be referred to their school counselor. Based on our experience and demonstrated ability to conduct this type of research, we are confident we can achieve safe intervention delivery.

3C.11. Data Collection, Management, and Security. Surveys will be programmed using Qualtrics software on KB's secure web server to ensure a structured approach and reduce errors. Drs. Midgett and Doumas, and Ms. Buller and Ms. Bond have experience maintaining large databases. All data will be uploaded in real-time using KB's secured network; data transfer from KB to Boise State University (BSU) will occur through their secured network systems using established data transfer protocols. Data will be de-identified and stored in secured databases. Established protocols for quality assurance (valid ranges; internal consistency checks, etc.) will ensure high quality data. Missing data should be limited since data is recorded electronically. Ms. Bond will identify missing responses and check that entries were not intentionally skipped. While unlikely, data may not be missing at random (NMAR). Ms. Bond will assign all lost responses to extreme category and perform multiple imputation procedures that can handle various amounts of missing data and use covariates and propensity scores.

Statistical Analysis Plan

3C.12. Statistical Power Calculations and Analysis.

3C.12.1 Sample size: The primary outcomes are increases in knowledge acquisition and confidence, use of the STAC-T strategies, and reductions in bullying. Secondary aims include reductions in mental health risks. We calculated power for these outcomes based on data from our school-based research with the in-person STAC program using Randomized Control Trials (RCTs) with similar designs, including in-school randomization and a 6-week follow-up. Assuming means, variances, and within-student intraclass correlations (ICCs) are unchanged and using a within-school ICC of 1%, we found that six schools with a combined sample of $n=940$ would provide at least 80% power to detect significance at $p < .05$ for all study outcomes, including bullying and mental health outcomes.

3C.12.2. Analyses: Descriptive statistics will be used to initially characterize the outcomes. We will use linear or generalized linear mixed model framework, with random effects of repeated observations on students, students nested in grade, within school, and within geographical location to analyze changes in outcomes.

Aim 1 (Program Development). Focus groups will be audiotaped, transcribed, and analyzed using NVivo. Emerging codes will be assigned to phrases and text passages that categorize views, themes, and opinions. Qualitative analysis will rely on two primary methods: constant comparative analysis (based on grounded theory methodology), and a phenomenological approach. Summary reports will be prepared and reviewed by investigators and Klein Buendel, Inc. (KB) media developers to finalize the STAC-T intervention.

Aim 2 (Usability). Applied formative research suggests that 5 users are sufficient to identify likes/dislikes and potential errors; thus, the power to detect Level 1 severity usability errors (i.e., concerns that make it impossible for the user to finish a task) should be more than sufficient with $n=24$. Research suggests that 10 users are needed to capture most lower severity usability problems. To identify any problems that impact $\geq 15\%$ of users at a 95% chance of detection ($\log(1-.95)/\log(1-.15)$), 18 users are needed. We plan to recruit $n=24$ so we should be sufficiently powered to capture more and less severe usability errors. Similar to Phase I, participants will complete the SUS, a validated tool used to measure usability and acceptability, and a measure of satisfaction with the STAC-T content (1=very dissatisfied, 5=very satisfied). Next, they will answer a series of interview questions on the perceived usefulness of the STAC content and appropriateness for their school, peer-group, and community, and ways to improve it. Personnel will also respond to questions on the feasibility of STAC-T, likelihood of using it, and potential barriers to use.

Aim 3 (Efficacy). We will evaluate whether the STAC-T intervention increases knowledge and confidence to intervene from baseline to immediate and 6-week follow-up, use of STAC-T strategies at the 6-week follow-up and decreases in bullying and cyberbullying perpetration and victimization and mental health risks from baseline to the 6-week follow-up. Means, SDs, and percentages will be used to describe the primary outcomes for the STAC-T intervention group and the assessment-only control group. To identify changes in the primary and secondary outcomes, we will evaluate each outcome using analysis of variance in a linear or generalized linear mixed model framework, with random effects of repeated observations on students, students nested in grade, classroom period, and school. We will address the appropriateness of the model for non-normal outcomes and apply the appropriate distribution as necessary, and we will assess models for the necessity of all random effects using a version of the Akaike information criterion (AIC_c). The fixed effects will include treatment (intervention, control), time (baseline, follow-up), and their interaction. We will also conduct exploratory analyses to examine biological sex and program language as moderators of intervention effects.

3C.13. Scientific Rigor and Limitations. This study has many strengths, few limitations, and is scientifically rigorous. The study is theory driven. Formative data will incorporate multiple stakeholder input. Programming will be multi-model and evidence-based resulting in a systematic, flexible, and

cost-effective approach. Sample sizes are supported by literature and our prior research. Efficacy will be evaluated in a RCT, allowing for sufficient power and efficiency. Outcome measures have strong psychometric properties. The study team and environments are strong. Potential limitations are: (1) programming difficulties, (2) recruiting, (3) sources of bias, and (4) potential contamination. We have tried to reduce their impact and will remain flexible to adapting our methods if barriers arise (e.g., conducting work remotely versus in-person).