Recruitment. Pilot: Pilot participants will be recruited using the University of Houston's (UH) online research management system (SONA). Pilot participants will meet study inclusion and exclusion criteria. RCT: Our experience in recruiting participants for similar studies suggests that we will easily be able to enroll 130 participants over a 60-week period (average of 2-3 participants per week). The projected enrollment is highly feasible based on prior experience with in-person PFIs, which yielded 2-10 participants per week. To further illustrate, Dr. Zvolensky's Anxiety and Health Research Laboratory-Substance Use Treatment Clinic (AHRL-SUTC) currently receives approximately 70 calls per month (average contacts) from smokers interested in participating in smoking (basic and applied) research. For the present study, we expect approximately 60% of callers who complete the phone-screener to meet eligibility criteria; 50% of those individuals to complete the baseline appointment; and 95% of those to be eligible for the study. Participants will be recruited from UH (over 40,000 students) and greater Houston area (population of more than 2.1 million) through mainstream (newspaper, alternative newspapers, and weekly church bulletins) and electronic media (university listserves, Facebook, etc.), and advertisement posting in a community-based psychological service center (operated by the Department of Psychology) and student/staff medical clinic at UH; we will examine demographic differences across recruitment methods and adjust recruitment efforts if needed.

Pilot Procedure. Pilot participants will meet study inclusion and exclusion criteria. Interested individuals will complete an online pre-screener survey administered through SONA, UH's online research management system. Participants who meet eligibility criteria will be provided with the AHRL-SUTC contact information and instructed to contact the office to schedule an appointment. Pilot participants will provide informed consent, complete an on-line survey, receive personalized feedback, and complete an individual semi-structured interview with a trained researcher. The semi-structured interview will include questions about the personalized feedback format and content, and suggestions to improve the feedback.
Participants will also be asked to rate the relevance and usefulness of the feedback, and research staff will solicit suggestions for coping strategies. As in our past treatment development work, we will employ a standardized decision-making format wherein we will only proceed with item content if it is rated above a 7 on a 0 (none) - 10 (extreme) Likert-based scale for relevance and usefulness. This evaluation process will help ensure that we solicit a wide range of feedback and cut feedback that does not achieve a moderate or greater level of relevance/ usefulness for ratings. Participants will receive course credit for participating in the Pilot that will take approximately 90 minutes. Semi-structured interviews will be audio-recorded and transcribed. An independent research assistant and I will code the transcriptions across emergent themes. Data will be analyzed using the grounded theory method. Findings from these analyses, and the content ratings, will inform revisions.

RCT Procedure. Upon arrival, participants will meet with a trained researcher who will obtain informed consent. The participant will then complete a 30 minutes pre-intervention online survey; an estimate derived from past work. After completing the pre-intervention survey, the participant will complete a CO assessment and provide saliva for cotinine analysis to confirm smoking status. Participants will then have a 5-minute break during which time the trained research assistant will evaluate eligibility criteria. Participants who do not meet eligibility criteria will be provided the National Cancer Institute's Clearing the Air (CTA) pamphlet, compensated

$10, and dismissed. Participants who meet eligibility criteria will complete a 30 minutes computer-delivered intervention. Based on permuted block randomization by gender, the participant will complete either the (a) PFI or (b) smoking information control. After completing the intervention and another 5-minute break, participants will complete a 15-minute post-intervention assessment and receive a printed copy of the intervention materials. The post-intervention assessment will include manipulation check items. After completing all aspects of the baseline appointment, participants will be compensated $20 and scheduled for their 1-month follow-up. The follow-up appointment will be completed at the AHRL-SUTC and will consist of an online survey, CO collection and, if they report being abstinent for at least 7 days prior to the appointment, saliva cotinine. This appointment will take approximately 30 minutes and participants will be compensated $20. Participants who are unable to complete the survey at the AHRL-SUTC will have the option to complete the survey remotely and have their payment mailed or schedule a time to pick it up. Although we are aware that cotinine may be incompletely metabolized without two-weeks of abstinence, this approach (CO and cotinine) is the scientific standard to document and biochemically verify smoking status.

Personalized Feedback Integrated Intervention. The PFI will be modeled from those that have focused on substance use and targeted negative mood symptoms. The PFI will provide brief personalized feedback that delivers salient points on patterns of use, norms comparisons, AS, and coping strategies, and detailed text about the relation between perceived norms and behavior as well as the link between smoking and AS. First, the PFI will provide smoking feedback. Specifically, descriptive feedback on the participant's smoking behavior, history, and current nicotine dependence, perceived norms and actual norms of smoking in Texas and the US, personalized feedback on methods used to help them quit in the past and problems experienced while trying to quit in the past, feedback on money spent on smoking, health problems resulting from smoking and health benefits of quitting, perceived barriers to cessation, their smoking triggers as well as tips for quitting, managing cravings, and coping without smoking. Second, the PFI will define AS and provide information linking smoking and negative mood and the prevalence of their cooccurrence. For this portion of the PFI, participants will receive personalized feedback on smoking to cope with their negative mood, AS symptoms they endorsed, their overall AS score and a normative comparison for overall AS score among smokers, personalized feedback on rating of importance and confidence to change their AS, and coping strategies they indicated they used or were willing to use as well as additional coping strategies to help manage their AS and negative mood.

Smoking Information Control. Participants in the smoking information control group will receive the same computer-delivered smoking information content as the PFI condition, including smoking cessation strategies from the CTA pamphlet, but no personalized feedback or AS information. We have successfully used a similar control condition in intervention trials. The two conditions will be time matched. The use of this control will permit evaluation of personalized feedback for smoking/mood compared to non-personalized smoking content.

Statistical Analysis Plan. Qualitative data will be analyzed using an iterative inductive analysis method consistent with the method of grounded theory. First, the semi-structured interviews will be transcribed. Second, two independent research assistants will draft a list of recurring (e.g., discussed by 2 or more participants) themes for PFI improvements that emerge

from transcriptions. I will review all transcriptions and finalize the list of themes. Third, an independent research assistant and I will code the transcriptions across themes using Analysis Software for Word-Based Records. I will then examine the frequency of themes for the entire sample. Themes that are endorsed by at least 40% of the sample will be used to inform PFI revisions.

The primary analysis strategy will consist of examining mean differences between the intervention and control group using general linear mixed modeling and evaluating expectancies and norms as mediators of intervention effects. With respect to evaluating the main effects of experimental conditions on dependent measures, each participant will provide baseline and 1-month follow-up data. I will employ an intent-to-treat design and correct for alpha inflation using Bonferroni adjusted alpha. I will examine mean differences for the different dependent variables (outcomes) at 1-month follow-up controlling for the baseline score on the outcome. As covariates, we will also include any demographic variable(s) on which baseline differences are evident in any of the outcomes variables. We will assess whether interventions are significantly different for outcomes at the follow-up point. I will be sensitive to distributional assumptions and will incorporate negative binomial or alternative distributional specifications as appropriate. My first aim focuses on intervention effects on smoking motivation (motivation, confidence, intention to quit and perceived barriers for quitting) as primary dependent variables. My second arm focuses on intervention effects on behavior outcomes (smoking rate, quit attempts, reinforcing nature of smoking, and coping-oriented smoking) as primary dependent variables. My third aim focuses on intervention effects on AS, anxiety/depressive symptoms, and willingness to use coping strategies as primary dependent variables. These criterion variables were selected on the basis of their theoretical and clinical relevance to the study questions and utility. Intervention condition will be included as a dummy coded contrast. Lastly, I will follow the procedures described by MacKinnon and colleagues to assess hypothesized mediation effects of decreased positive expectancies and perceived smoking norms for continued smoking; whereby, path A is the effect of the predictor on the mediator, path B is the effect of the mediator on the outcome, path C is the effect of the predictor on the outcome, and path C' is the effect of the predictor on the outcome controlling of the mediator. All mediation analyses will be temporally ordered such that mediators will be assessed immediately post-intervention and outcomes will be assessed at a later time point than the mediators; baseline scores for mediators and outcomes will be controlled for in mediation analyses. Mediation analyses will be conducted using bootstrapping techniques through PROCESS, a conditional modeling program that utilizes an ordinary least squares-based path analytical framework to test for both direct and indirect effects. An indirect effect is assumed to be significant if the product of paths A and B is significant.