



# Towards an understanding of self-directed language as a mechanism of behavior change: A novel strategy for eliciting client language under laboratory conditions



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## ABSTRACT

**Introduction:** Change talk (CT) and sustain talk (ST) are thought to reflect underlying motivation and be important mechanisms of behavior change (MOBCs). However, greater specificity and experimental rigor is needed to establish CT and ST as MOBCs. Testing the effects of self-directed language under laboratory conditions is one promising avenue. The current study presents a replication and extension of research examining the feasibility for using simulation tasks to elicit self-directed language.

**Methods:** First-year college students ( $N = 92$ ) responded to the Collegiate Simulated Intoxication Digital Elicitation, a validated task for assessing decision-making in college drinking. Verbal responses elicited via free-response and structured interview formats were coded based on established definitions of CT and ST, with minor modifications to reflect the non-treatment context. Associations between self-directed language and alcohol use at baseline and eight months were examined. Additionally, this study examined whether a contextually-based measure of decision-making, behavioral willingness, mediated relationships between self-directed language and alcohol outcome.

**Results:** Healthy talk and unhealthy talk independently were associated with baseline alcohol use across both elicitation formats. Only healthy talk during the free-response elicitation was associated with alcohol use at follow up; both healthy talk and unhealthy talk during the interview elicitation were associated with 8-month alcohol use. Behavioral willingness significantly mediated the relationship between percent healthy talk and alcohol outcome.

**Conclusions:** Findings support the utility of studying self-directed language under laboratory conditions and suggest that such methods may provide a fruitful strategy to further understand the role of self-directed language as a MOBC.

## 1. Introduction

As part of a larger movement to understand the causal processes by which behavioral treatments for substance use problems lead to desired outcomes, researchers have begun investigating a number of mechanisms of behavior change (MOBCs), or factors hypothesized to drive changes in substance use (Magill, Kiluk, McCrady, Tonigan, & Longabaugh, 2015). Self-directed verbal statements about one's own substance use have been identified as a potentially important MOBC. Specifically, two dimensions of self-directed language have been investigated: change talk (CT), or statements supporting movement towards healthy behavior, and sustain talk (ST, previously known as

counterchange talk), or statements supporting maintenance of unhealthy behavior. Self-directed language as a MOBC largely has been studied in the context of motivational interviewing (MI: Miller & Rollnick, 2013) as it is hypothesized to be central to MI's effectiveness, but the influence of self-directed language is by no means unique to MI. CT and ST have almost exclusively been studied in therapeutic settings despite the potential utility and value of examining self-directed language in other contexts. The purpose of the current study is to examine the ability to validly elicit CT and ST under laboratory conditions using a simulation task as a novel technique for studying self-directed language as a MOBC independent of the therapeutic context. Doing so could be useful for a number of reasons.

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First, the issue of whether self-directed language represents a true MOBC or serves as a proxy for another underlying mechanism (e.g., motivation) remains unanswered. Laboratory tests of self-directed language could serve to help establish the experimental criterion for demonstrating self-directed language as a MOBC (Kazdin & Nock, 2003). Additionally, the measurement of self-directed language has been largely atheoretical (Miller & Rollnick, 2012) and divorced from the larger theoretical literature on determinants of motivation and health decision-making. For example, a considerable body of literature suggests decision-making occurs via dual processes (e.g., Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Kahneman & Frederick, 2002; Slovic, Finucane, Peters, & MacGregor, 2004). While differing in terminology, a number of theories posit two systems underlying decision making: a deliberative, rational system and an experiential, reactive system. By studying the impact of client language elicited during therapeutic interventions, researchers may be isolating aspects of the rational system, but likely missing out on the influence of the experiential system (i.e. contextually-bound decision making). Isolating the specific mechanisms of self-directed language could serve the larger decision-making literature by exploring for whom and under which conditions self-directed language is most impactful upon future choices regarding alcohol use.

Relatedly, while studying self-directed language in therapeutic settings is important, it also restricts the study of MOBCs to a specific range of the change spectrum, which may limit understanding of the conditions under which self-directed language leads to behavior change (Morgenstern et al., 2012). To this end, expanding the study of the link between self-directed language and health behavior beyond the therapeutic milieu could inform efforts to utilize such verbal behavior in other health applications (e.g., early detection and assessment of risk, prevention techniques, public and/or individualized health messaging). Finally, studying self-directed language outside the therapeutic environment also eventually may serve to inform provision of clinical services by refining the understanding of self-directed language as a MOBC in general “talk therapy.” As outcome equivalence has been found across differing treatment modalities with various proposed mechanisms of change (Longabaugh, 2007), understanding the importance of self-directed language and the role the individual or therapist has on self-directed language and subsequent behavior change may enhance treatment efficacy and effectiveness.

One strategy with the potential to further refine our understanding of self-directed language is the use of laboratory-based simulation paradigms. Self-directed language traditionally assessed in therapy contexts is distal and decontextualized from the situations in which individuals make decisions about drinking. The use of simulations enhances the ability to model more proximal drinking decision making, as well as the ability to examine these processes among individuals who other methods of assessing proximal decision making can be more difficult due to ethical and/or legal considerations (e.g., individuals under the age of 21). As the first of its kind, Ladd, Garcia, and Anderson (2016) demonstrated the potential for studying self-directed language elicited during a laboratory task. This cross-sectional study utilized the Adolescent Simulated Intoxication Digital Elicitation (A-SIDE: Anderson et al., 2014) in a sample of adolescents aged 14–18, a paradigm wherein participants respond verbally to videos of simulated substance use scenarios. Results demonstrated that self-directed language could be reliably coded using definitions consistent with CT and ST. Self-directed language was also associated with behavioral willingness (BW), or openness to engage in a behavior given the opportunity to do so (Pomery, Gibbons, Reis-Bergen, & Gerrard, 2009), but not concurrent substance use.

The current study attempted to replicate and extend the feasibility of using simulation tasks as a method for assessing self-directed language under laboratory settings by building on the findings of Ladd, Garcia, et al. (2016) in a sample of first-year college students. The majority of high school seniors report using alcohol in the past year and

almost a quarter report binge drinking in the past two weeks (Patrick & Schulenberg, 2014), thus first-year college students represent a population across the spectrum in terms alcohol behavior change. The first year of college is an important timeframe during which young adults make short-term (e.g., what to do on Friday night) and long-term (e.g., identity formation) decisions around alcohol, making this population a useful target for studying self-directed language as a MOBC. We hypothesized that in response to simulated drinking situations, self-directed language related to alcohol use could be reliably categorized into healthy talk and unhealthy talk, using definitions largely consistent with the larger body of research on self-directed language. As noted previously, definitions of CT and ST were developed for treatment contexts where the need for change towards healthier behavior was assumed. Given the non-treatment context of the current study, the desire/expectation of change may not be applicable in many cases. Accordingly, we modified the definitions of CT and ST slightly to better reflect underlying psychological processes (e.g., motivation, attitudes) related to approaching or avoiding alcohol use similar to previous extensions of client language measurement beyond the treatment context (Ladd, Garcia, et al., 2016; Ladd, Tomlinson, Myers, & Anderson, 2016). Modifications to the traditional measures of CT and ST are described in detail in the coding procedures Section 2.2.1 below. Additionally, the current study utilized longitudinal data that allowed for the investigation of associations between self-directed language elicited in the laboratory and subsequent alcohol use. We hypothesized that greater rates of healthy talk at the beginning of the academic year in college freshmen would be associated with lower alcohol use 8 months later while greater rates of unhealthy talk would be associated with greater alcohol use.

We also conducted exploratory analyses to examine self-directed language within a broader framework of dual-process decision making as a potential avenue for understanding contexts under which self-directed language better predicts behavior. According to one specific model, the prototype-willingness model (Gibbons & Gerrard, 1995; Gibbons, Gerrard, Blanton, & Russell, 1998), risk behavior decision-making occurs via two parallel pathways: a distal reasoned one and a proximal nondeliberative one. As measured in therapeutic contexts, self-directed statements about alcohol represent conscious reflections of one's behavior decontextualized from the immediate decision-making process, and thus are unlikely to lead directly to behavior change; instead it is more plausible that self-directed language is a distal variable that mobilizes other factors related to in-the-moment behavior. Using this conceptualization, self-directed language could be a measurement of the intentional and reasoned pathway, while BW represents a measure of the nondeliberative pathway (Gibbons et al., 1998). We hypothesized that the relationship between self-directed language and alcohol use would be mediated by BW. In other words, talking about one's goals and behavior abstractly may serve to reduce the impact of context-based factors on decision-making, thereby resulting in behavior change.

## 2. Methods

### 2.1. Participants

We utilized data from the validation study of the Collegiate Simulated Intoxication Digital Elicitation (C-SIDE: Anderson, Duncan, Buras, Packard, & Kennedy, 2013), which consisted of transcripts of verbal responses to the simulation (94% of original sample, loss of data due to inaudible recordings and/or mechanical failure of recording device). First year college students ( $N = 92$ ) were recruited within the first few weeks of the school year ( $M_{\text{days}} = 12.1$ ,  $SD = 8.8$ ). The sample was  $M = 18.6$  ( $SD = 0.4$ ) years old, 59.8% women ( $n = 55$ ) and predominantly White (81.5%,  $n = 75$ ).

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