

# Toward Conducting Motivational Interviewing with an On-Demand Clinician Avatar for Tailored Health Behavior Change Interventions

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## How to motivate behavior change?

Recent research reveals that best way to motivate patients to change behavior is by:

- Moving away from stereotypic "paternalistic" style of interaction
- Toward a physician-patient (or counselor-client) working **alliance**

Motivational Interviewing is a recent directive client-centered counseling style to:

- **Magnify discrepancies** between client goals and current behavior
- **Explore and resolve ambivalence** about changing behavior

### Stereotypic Counseling

- Goal-oriented
- Expert role
- Focus on action
- Direct persuasion
- Medical education
- Give reasons to change
- Clinician talks more

### Motivational Interviewing

- Patient-centered
- Collaborative
- Focus on motivation
- Explore ambivalence
- Individualized feedback
- Elicit reasons to change
- Clinicians listens more

## What is Motivational Interviewing?

Spirit of Motivational Interviewing:

1. Motivation to change is **elicited from the client**
2. It is the **client's task**, not the counselor's, to articulate and resolve ambivalence
3. Direct persuasion is *not* an effective method for resolving ambivalence
4. The counseling style is generally **quiet and eliciting**
5. The counselor is **directive** in helping the client to examine and resolve ambivalence
6. **Readiness to change** is not a client trait, but a fluctuating product of interpersonal interaction (stages of change)
7. The therapeutic relationship is a **partnership or companionship**

## Why conduct MI with avatars?

People:

- (Unconsciously) respond in social ways to computers given appropriate social cues
- Can develop personal relationship with computer agent such as mentor, companion, or friend

Advantages of using avatars:

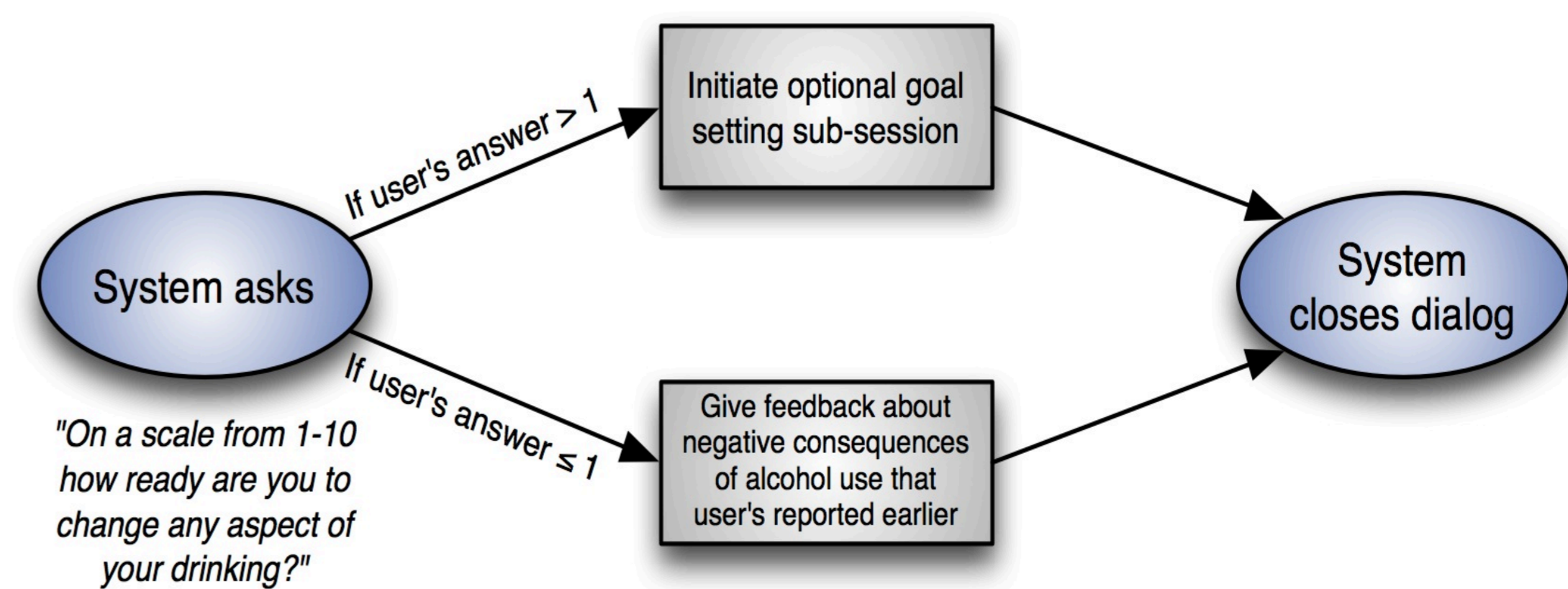
- Confidentiality for sensitive private information
- Appeal of technology for youth
- Ability to tailor feedback health messages to each single user
- Reliability and validity, no variability in quality of expert
- Can be delivered (& customized) across heterogeneous populations
- Barriers-to-access removed
- Can be delivered in schools, homes, clinical & community settings

Feasibility of conducting MI with avatars:

- MI intervention scripts are sufficiently domain/intervention-specific to be computerized, manageable NLP complexity

## What does the system do?

- Conducts and narrates repeatable **tailored** MI interventions
- Aimed at young students with drinking issues
- Can be re-authored for other MI interventions, e.g. smoking or eating disorders
- Uses MI-style of interpersonal communication with menu-based dialogs



## What are the system components?

User-Model Database for Tailoring:

- Collect personal data to tailor interaction (e.g. address user by name, match avatar ethnicity)
- Update drinking patterns and stage of readiness to change from repeatable self-monitoring assessments

Assessment System and Self-Monitoring tool

- Drinking patterns (e.g. # of drinks, time of day or week, drinking location, with what friends)
- Stage of change (pre-contemplation, contemplation, preparation, action, maintenance, [relapse])

Personalized Feedback about Assessment results, e.g.

- Self-reported drinking
- Perceived current and future risks of drinking
- Negative consequences of current consumption patterns
- Personal goals and their relation to alcohol use
- Social supports and their beliefs about drinking
- Intentions and self-efficacy in regard to personal drinking goals
- Change across time w.r.t Stages of change
- Normative statistics graph comparison (enhanced perception)

Expert system

- Use relevant DBs for comparing individual scores against "peers"
- Generate comparison normative statistics (from user's assessment data)

## How does the avatar communicate?

Multimodal Communication:

- Text and Text-To-Speech: requires **no** advanced **reading literacy**
- Matched ethnicity: implements patient-physician **concordance**
- Non-verbal communication behavior via dynamic facial expressions: expresses **empathy**

Challenges and Future Work:

- Address emotional and relational aspect of communication
- Believability: graphical realism vs. social realism, avoid uncanny valley
- User engagement: avoid dialog repetitiveness
- Mobility: develop mobile version from smart phone prototype for "windows of opportunity" interventions
- Implement free text MI dialogs

